Solid State Timer and Control Component Catalog

“TIMING IS EVERYTHING”

www.issc-kanson.com/ 1-800-233-9354
1017-SP7 Utility Industry on delay timer with high voltage DC output. Time proven circuitry in a rugged metal can housing, functions reliably in the toughest environments. See page 8.

1248A our popular combination proximity sensor and motion detector in a compact limit switch housing. See page 33.

1232 Resistance detector with built-in time delays, eliminate problems caused by part bounce or poor initial contact. See page 40.

Proudly Made in America

We build the best timers and sensors on the market right here in the USA, and we stand behind them. *Powder coated steel enclosures, Zinc plated base plates, Stainless steel screws*, are a few of the items that help set us apart from everyone else. We will outlast and outperform anyone on the market, and help to improve your products.

*Your success is our business.*

PLC watchdog applications.

Many designers are now specifying external watchdog timers in PLC systems. The 1217 motion detector is an ideal selection for this application. It is available with a 24V AC/DC power supply for use in low voltage systems. See page 31.

**Analog setting dials, Digital timers, and Counters pages 20 thru 29**

**DIN style timers in both analog and digital versions.**

**Pushbutton setting controls pages 18 thru 29**
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TIMING FUNCTIONS

Type 1 - On Delay

Control closed
open
Output on
off

Adjustable time delay on energizing
- Closing the control circuit starts the time delay
- Opening the control circuit during timing resets time delay to zero - no accumulation of time delay or false output

Type 2 - Off Delay

Control closed
open
Output on
off

Adjustable time delay on de-energizing
- Closing the control circuit energizes output
- Opening the control circuit starts the time delay
- Reclosing the control circuit during timing resets time delay to zero - no accumulation of time delay or false output

Type 3 - Programmable

User programmable to either On Delay, Off Delay, Pulsed Interval, Maintained Interval or other function

Type 4 - Pulsed Interval

Control closed
open
Output on
off

Adjustable time output pulse
- Closing the control circuit initiates timed output pulse
- Opening and closing the control circuit during timing will not effect timing or output

Type 5 - Maintained Interval

Control closed
open
Output on
off

Adjustable timed output interval
- Closing the control circuit starts timed output interval
- Opening the control circuit during timing resets time delay to zero and de-energizes output

Type 6 - Pulsed Off-On One Cycle

Control closed
open
Output on
off

Adjustable dual time delay
- Closing the control circuit initiates timing sequence
- Opening and closing the control circuit during timing will not effect timing or output

Type 7 - Maintained Off-On One Cycle

Control closed
open
Output on
off

Adjustable dual time delay
- Opening the control circuit starts timing sequence
- Opening and closing the control circuit during timing resets both time delays to zero and de-energizes output

Type 8 - On Delay/Off Delay

Control closed
open
Output on
off

Adjustable dual time delay
- Closing the control circuit starts timing sequence
- Combines functions of On Delay and Off Delay into a single timer

Type 9 - Repeat Cycle

Control closed
open
Output on
off

Adjustable dual time delay
- Closing the control circuit starts timing sequence
- Opening the control circuit during either timing period resets both time delays to zero and de-energizes output
TIMING FUNCTIONS

**Type E - Pulsed On Delay Latched**
- Control closed
- Output on
- Output off

Adjustable dual time delay
- Closing the control circuit initiates timing sequence
- Opening and closing the control circuit during timing will not effect timing or output

**Type OC - One Cycle, Maintained Interval**
- Control closed
- Output on
- Output off

Fixed time (0.8 sec.) output pulse
- Closing the control circuit starts the timing sequence. The output contacts change state for 0.8 sec. after time delay is completed.
- Opening the control circuit during timing resets the time delay to zero.

**Type G - On Delay, Time Totalizing**
- Control closed
- Output on
- Output off

Adjustable time delay on energizing
- Closing the control circuit starts the timing sequence
- Opening control circuit during timing stops the timing sequence but does not reset the time accumulated
- Upon time-out, the output will remain latched until reset.

**Type Total A - Maintained On Delay/Off Delay One Cycle, Time Totalizing**
- Control closed
- Output on
- Output off

Programmable dual time delay
- Closing control circuit starts timing sequence
- Opening the control circuit during either timing period stops the timing sequence but does not reset the time accumulated
- Reset is achieved via external reset control

**Type Total B - Repeat Cycle, Start Off Time Totalizing**
- Control closed
- Output on
- Output off

Programmable dual time repeat cycle
- Closing control circuit starts timing sequence
- Opening the control circuit during either timing period stops the timing sequence but does not reset the time accumulated
- Reset is achieved via external reset control

**Type Total C - Repeat Cycle, Start On Time Totalizing**
- Control closed
- Output on
- Output off

Programmable dual time repeat cycle
- Closing control circuit starts timing sequence
- Opening the control circuit during either timing period stops the timing sequence but does not reset the time accumulated
- Reset is achieved via external reset control
## TIMERS

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<th>Input</th>
<th>Output</th>
<th>Model</th>
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<td>0.06-500 secs</td>
<td>X</td>
<td>AC</td>
<td>R/SS(1)</td>
<td>1010</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>AC</td>
<td>R</td>
<td>1012</td>
</tr>
<tr>
<td></td>
<td>0.025-10 secs</td>
<td>X</td>
<td>AC</td>
<td>R</td>
<td>1017</td>
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<tr>
<td></td>
<td>0.02-300 secs</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
<td>1017 SP7</td>
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<tr>
<td></td>
<td>0.02-500 secs</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
<td>1019</td>
</tr>
<tr>
<td></td>
<td>.05-20 min.</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
<td>1020</td>
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<td>0.05-20 min.</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
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<td>0.025-2000 secs(2)</td>
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<td>AC/DC</td>
<td>R</td>
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<td></td>
<td>0.1-10230 sec</td>
<td>X</td>
<td>AC/DC</td>
<td>SS</td>
<td>2110</td>
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<td>0.1-500 hrs(2)</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
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<td>0.06-500 secs</td>
<td>X</td>
<td>AC</td>
<td>R/SS(1)</td>
<td>1010</td>
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<tr>
<td></td>
<td></td>
<td>X</td>
<td>AC</td>
<td>R</td>
<td>1012</td>
</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>AC</td>
<td>R</td>
<td>1013</td>
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<td>0.06-1000 secs</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
<td>1018</td>
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<td>0.02-500 secs</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
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<td>AC</td>
<td>R</td>
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<td>X</td>
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<td>0.1 sec-500 hrs</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
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<td>AC/DC</td>
<td>R/SS</td>
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<td>R/SS</td>
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<td>AC</td>
<td>R/SS(1)</td>
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</tr>
<tr>
<td></td>
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<td>X</td>
<td>AC</td>
<td>R</td>
<td>1012</td>
</tr>
<tr>
<td></td>
<td>0.06-1000 secs</td>
<td>X</td>
<td>AC/DC</td>
<td>R</td>
<td>1018</td>
</tr>
<tr>
<td>Type 5 Maintained Interval</td>
<td>0.06-500 secs</td>
<td>X</td>
<td>AC</td>
<td>R/SS(1)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>X</td>
<td>AC</td>
<td>R</td>
<td>1012</td>
</tr>
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<td>X</td>
<td>AC</td>
<td>R</td>
<td>1013</td>
</tr>
<tr>
<td></td>
<td>0.06-1000 secs</td>
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<td>AC/DC</td>
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<td>AC</td>
<td>R</td>
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<td>R</td>
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<td>AC</td>
<td>SS</td>
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<td>X</td>
<td>AC/DC</td>
<td>R</td>
<td>1068</td>
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Notes:
(1) R=relay SS=solid state R/SS=relay standard, solid state optional.
(2) Programmable time ranges.
(3) Timed and instant contacts.
## Sensor Adjustment Operating Mechanical Proximity

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<th>Proximity Input</th>
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<td>0.06-100 secs</td>
<td>1,080 ppm</td>
<td>X</td>
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<tr>
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<td>5-5000 ppm(1)</td>
<td>12,000 ppm</td>
<td>Self contained</td>
<td></td>
<td>1248A</td>
</tr>
<tr>
<td></td>
<td>0.06-500 secs</td>
<td>2,400 ppm</td>
<td>X</td>
<td>X</td>
<td>1260</td>
</tr>
<tr>
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<td>0.02-1000 secs</td>
<td>108,000 ppm</td>
<td>X</td>
<td>X</td>
<td>1262</td>
</tr>
<tr>
<td>Underspeed</td>
<td>5-5000 ppm</td>
<td>12,000 ppm</td>
<td>Self contained</td>
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<td>1248A</td>
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<tr>
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<td>0.02-1000 secs</td>
<td>108,000 ppm</td>
<td>X</td>
<td>X</td>
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<tr>
<td></td>
<td>0.06-100 secs</td>
<td>1080 ppm</td>
<td>X</td>
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<td>1217</td>
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<td>Overspeed</td>
<td>5-5000 ppm</td>
<td>12,000 ppm</td>
<td>Self contained</td>
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<td>1248A</td>
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<tr>
<td></td>
<td>0.02-1000 secs</td>
<td>108,000 ppm</td>
<td>X</td>
<td>X</td>
<td>1262</td>
</tr>
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</table>

Notes:
(1) ppm = pulses per minute

## Motion Detectors

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<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.06-500 secs</td>
<td>120 VAC</td>
<td>Relay</td>
<td>1260</td>
</tr>
<tr>
<td>0.06-100 secs</td>
<td>24 VAC/DC</td>
<td>Relay</td>
<td>1217C</td>
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<tr>
<td>0.06-100 secs</td>
<td>120 VAC</td>
<td>Relay</td>
<td>1217C</td>
</tr>
<tr>
<td>0.02-1000 secs</td>
<td>120 VAC</td>
<td>Relay</td>
<td>1262</td>
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## PLC Watchdog Timers

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<tr>
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<th>Power Supply</th>
<th>Output</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.06-500 secs</td>
<td>120 VAC</td>
<td>Relay</td>
<td>1260</td>
</tr>
<tr>
<td>0.06-100 secs</td>
<td>24 VAC/DC</td>
<td>Relay</td>
<td>1217C</td>
</tr>
<tr>
<td>0.06-100 secs</td>
<td>120 VAC</td>
<td>Relay</td>
<td>1217C</td>
</tr>
<tr>
<td>0.02-1000 secs</td>
<td>120 VAC</td>
<td>Relay</td>
<td>1262</td>
</tr>
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## Resistance/Voltage Detectors

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<th>Input</th>
<th>Output</th>
<th>Model</th>
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<td>X</td>
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<td>X</td>
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<td>AC/DC</td>
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<td>1232</td>
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<td>AC/DC</td>
<td>R</td>
<td>1234</td>
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<td>AC</td>
<td>SS</td>
<td>LLD-100</td>
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</table>

## Proximity Switches

<table>
<thead>
<tr>
<th>Type</th>
<th>Style</th>
<th>Supply</th>
<th>Output</th>
<th>Model</th>
</tr>
</thead>
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<tr>
<td>Inductive</td>
<td>Limit switch</td>
<td>10-40 VDC</td>
<td>100 mA</td>
<td>1217P</td>
</tr>
<tr>
<td>Inductive</td>
<td>Limit switch</td>
<td>10-26 VDC</td>
<td>100 mA</td>
<td>1221</td>
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<tr>
<td>Inductive</td>
<td>Limit switch</td>
<td>20-250 VAC/DC</td>
<td>500 mA</td>
<td>1248A(1)</td>
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<tr>
<td>Inductive</td>
<td>Limit switch</td>
<td>20-250 VAC/DC</td>
<td>500 mA</td>
<td>1250</td>
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<tr>
<td>Magnetic</td>
<td>Cylindrical</td>
<td>9-26 VDC</td>
<td>100 mA</td>
<td>TMS-D</td>
</tr>
</tbody>
</table>

Notes:
(1) with built-in motion detector timer circuitry

## Stepper Board

<table>
<thead>
<tr>
<th>Mounting</th>
<th>Style</th>
<th>Supply</th>
<th>Output</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge Mount</td>
<td>Programmable Stepper</td>
<td>AC/DC</td>
<td>SS</td>
<td>1050</td>
</tr>
</tbody>
</table>
GLOSSARY

CSA (Canadian Standards Association) The agency for testing and approving products sold in Canada.

INSTANT CONTACTS Relay contacts which energize or de-energize in conjunction with the input power switch or control device. These contacts operate independently of the timed contacts and can be used to control a separate function.

MAINTAINED INTERVAL A delay which energizes an output for a preset period of time. The control switch or input power must be maintained during the timing interval to complete the delay. This timing function is also known as interval delay, or interval ON.

MOTION DETECTOR A device to detect zero, underspeed or overspeed conditions of pumps, conveyors, blower fans and other similar equipment which requires proper machine speed.

MOV (metal oxide varistor) A component which provides transient protection.

OFF DELAY A delayed de-energization of an output. The delay begins when the control switch is opened. This timing function is also known as delay on break, delay on release, delay on de-energization or slow release.

ON DELAY A delayed energization of an output. The delay begins when the control switch is closed or power applied to the input. This timing function is also known as a time delay, delay on make, delay on operate, delay on energization, or slow operate.

ON DELAY/OFF DELAY This timing function is a combination of on delay and off delay.

POWER ACTUATION The control of a timing function through the application or removal of input power.

PULSED INTERVAL A delay which energizes an output for a preset period of time. The control switch must close only momentarily to initiate this delay. This timing function is also known as a single shot, one shot, pulse stretcher, or latching interval.

RANGE TOLERANCE Factory calibration of time range at room temperature and nominal input voltage.

REPEAT ACCURACY The maximum deviation in the time setting of a timer when operated under constant conditions (constant ON/OFF times, input voltage and temperature). The average of five consecutive operations, starting with the second operation, will serve as the reference for determining the maximum deviation.

REPEAT CYCLE A timing function in which the output is turned ON and OFF repeatedly as long as the control switch is closed or power remains applied to the input. This timing function is also known as a recycle timer or flasher.

RESET TIME The minimum period of time the timer requires to prepare for a new cycle.

TIMING VARIATION VS TEMPERATURE The timing change relative to a reference time delay at any temperature within specified limits. The reference time delay is based on five consecutive operations starting with the second operation and is measured at approximately 23°C, with constant ON/OFF times and input voltage.

TOLERANCE The variation in a quantity from specified values or times.

TRANSIENT PROTECTION Internal protection which prevents damage to the circuit from sudden changes in voltage.

UL (Underwriter's Laboratories, Inc.) The agency for testing and approving products sold in the United States.
REMOTE ADJUST CALCULATIONS

An external timing potentiometer (pot) wired to remote adjust terminals can be used to adjust the time setting from a remote location; to extend the time range of the unit; or to act as a vernier control. Determining the resistance value of the unit's internal pot is necessary for selecting the proper external pot. Calculate resistance value as follows:

1) Determine time range of unit.
   example : 0.06 - 5 secs
2) Determine from specifications the timing ramp (Ω/sec ratio) for that time range. The timing ramp is specified with the minimum time of the time range.
   example : 0.06 - 100kΩ/sec
3) Multiply timing ramp by maximum time of time range.
   example : 100kΩ/sec x 5 sec = 500kΩ
4) The product is the resistance value of the unit's internal pot.

Remote adjustment is useful in applications requiring frequent time setting changes due to machine variations or changes in machine function. The external pot can be run from the control cabinet to the work station where time variations occur. Install external pot for remote adjustment as follows:

1) Wire a remote pot of the same resistance value as the unit's internal pot to the remote adjust terminals (remove jumper between terminals).
2) Set unit's internal pot at minimum setting. The remote pot will then provide the same time range as the unit.

The time range of a unit can be extended if an application occasionally requires a slightly longer time than the unit is capable of providing. This capability should be used for minimal time range extensions only. Install external pot for extending time range as follows:

1) Wire a remote pot of the same resistance value as the unit's internal pot to the remote adjust terminals.
2) The internal and external pots are wired in series, so their resistance value is additive and provides an extended time range. Add time ranges of both pots to determine new time range.
   example : Time range of pots is 0.06 - 5 secs.
   Set internal pot at 2 secs
   Set external pot at 5 secs
   Total 7 secs
   Extended time range is 2 - 7 seconds.

Using an external pot as a vernier control provides fine adjustment of the time setting. Use in applications which require precise adjustment of slight changes in time setting. Install external pot for vernier control as follows:

1) Determine time range of unit.
   example : 0.06 - 5 secs
2) Determine range of variation in time setting.
   example : If time setting will vary between 3 and 4 seconds, range of variation in time setting is 1 second: therefore, an external pot is used to make time adjustments within a 1 second time period.
3) Determine timing ramp for unit. (see specifications)
   example : 100kΩ/sec
4) Multiply timing ramp by range of variation in time setting.
   example : 100kΩ/sec x 1 sec = 100kΩ/sec
5) The product is the resistance value of the external pot which will provide vernier control for a 1 second time period.
6) Set unit's internal pot for 3 seconds.
7) Use external pot for adjusting time between 3 and 4 seconds.
**Model 1005**

**Base Mount**

## Specifications

**Voltage:**
- 24V, 48V, 120V AC/DC or 140V to 345VDC
- 140V to 260VAC

**Frequency:**
50/60 Hz

**Tolerance (Voltage):**
+15% - 45% of rated (for type 1, 2, & 3)

**Power Consumption:** 10 VA maximum

**Type:** Electromechanical relay

**Rating:**
- 10A @ 240VAC maximum
- 10A @ 120VDC maximum

**Hi-Pot:** 1500V terminal to case
1200V between open contacts

**Contact Material:** AgCdO

**Service Life:** AC = 50 million, DC = 100 million operations minimum; at maximum operating frequency

**Operating Temp:** -40° to 70° C (-40° to 158°F)

**Mounting:** Base mount, zinc plated steel

**Termination:** Terminal blocks on face of relay

**Housing:** Powder coated steel cover

**Operate/Release Time:** 25 ms max.

**Operating Frequency:** 18,000 operations/hour (mech.)

**Vibration:**
10 to 55 Hz, 1 mm double amplitude

**Shock:** 200 m/s² (approx. 20G)

**Max. Switching Capacity:**
- 1,100 VA, 240W resistive load (p.f. = 1)
- 830 VA, 120W Inductive load (p.f. = 0.4) (L/R = 7 ms)

## Ordering Data

**Ordering Code:**
- 1005 - 1 - A - 1

**Basic Model Number:** 1005

**Input Voltage:**
- 1 24 VAC/DC
- 2 48 VAC/DC
- 3 120 VAC/DC
- 4 140V to 345VDC
- 140V to 260VAC

**Output:**
- A DPDT
- B 3PDT
- C 4PDT

**Function:**
- 1 All Purpose Relay

**Note:**
Rated up to 345VDC continuous.
Rock Solid “American Made” construction
Virtually indestructible.
SPECIFICATIONS

INPUT

VOLTAGE: 120VAC, 230VAC
FREQUENCY: 50/60 Hz
TOLERANCE (VOLTAGE): ± 15% of nominal
POWER CONSUMPTION: 10 VA maximum
TRANSIENT PROTECTION: Isolation transformer

OUTPUT

TYPE: Electromechanical relay (solid state available as accessory)
RATING: 10A @ 240VAC maximum

AVAILABLE TYPES: On delay, Off delay, Pulsed interval, Maintained interval
REPEAT ACCURACY: ± 1% of setting
RESET TIME: 50 msec minimum
INDICATION: Optional LED - ON when timing
Timing Ramp: 0.06 sec minimum time - 100kΩ/sec
0.5 sec minimum time - 10kΩ/sec
TIME RANGE: 0.06 to 500 secs in 12 ranges
RANGE TOLERANCE: ± 10%
CONTROL: Isolated contact closure
CONTROL TERMINALS: E-F
VOLTAGE PRESENT AT CONTROL TERMINALS: 24VDC min., 40VDC max.

OPERATING TEMP: 0° to 50° C (32° to 120°F)
TIMING VARIATION VS. TEMP: ± 5% maximum
MOUNTING: Base mount
TERMINATION: Terminal blocks on face of timer
HOUSING: Metal

WIRING

OUTPUT B
A-B Voltage input (constant)
C-D Remote adjust (jumper if not used)
E-F Control (starts timing function)
G-H Not used
1-3 N.O. timed
1-4 N.C. timed
5-8 N.C. timed
6-8 N.O. timed

Caution: Never apply voltage to terminals C-D-E-F

PHYSICAL

OUTLET B
A-B Voltage input (constant)
C-D Remote adjust (jumper if not used)
E-F Control (starts timing function)
G-H Not used
1-3 N.O. timed
1-4 N.C. timed
5-8 N.C. timed
6-8 N.O. timed

Caution: Never apply voltage to terminals C-D-E-F

DIMENSIONS

Inches (millimeters)

ORDERING DATA

ORDERING CODE
1010 - 1 - F - 2 - B OP6

BASIC MODEL NUMBER
1010

INPUT VOLTAGE
1 120VAC
2 230VAC

TIME RANGE (Secs)
A 0.06-0.10 F 0.06-5.0 L 0.5-250
B 0.06-0.25 G 0.06-10.0 M 0.5-500
C 0.06-0.50 H 0.06-25.0 W Fixed time
D 0.06-1.0 J 0.5-50.0 (see note)
E 0.06-2.5 K 0.5-100

NOTE: Specify W and desired fixed time. Factory will set time within 5%

TIMING FUNCTION
1 On delay 4 Pulsed interval
2 Off delay 5 Maintained interval

OUTPUT
B Relay DPDT
(solid state outputs available as accessories)

OPTION (If desired)
OP6 Timing indication light.

APPLICABLE ACCESSORIES
See accessory section for details
Output modules RP-101, RP-104 thru RP-106
Potentiometers RP-201 thru RP-210
Reference dial RP-216
Locking attachment RP-217
**MODEL 1012**

**PLUG-IN**

**INDUSTRIAL SOLID STATE TIMER**

---

**SPECIFICATIONS**

**INPUT**

- **VOLTAGE:** 120VAC, 24VAC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ± 15% of nominal
- **POWER CONSUMPTION:** 10VA maximum
- **TRANSIENT PROTECTION:** Isolation transformer (120VAC only)

**OUTPUT**

- **TYPE:** Electromechanical relay
- **MECHANICAL LIFE:** 10,000,000 operations
- **ELECTRICAL LIFE:** 300,000 operations
- **RATING:** 10A - 1/6HP at 120VAC, 1/3HP at 240VAC

**AVAILABLE TYPE:** On delay, Off Delay, Pulsed Interval, Maintained Interval

- **REPEAT ACCURACY:** ± 1% of setting
- **RESET TIME:** 50msec maximum
- **INDICATION:** Optional LED - ON when timing
- **TIMING RAMP:** .06sec minimum time - 100K ohm/sec
- **TIME RANGE:** 0.06 to 500 secs in 12 ranges
- **RANGE TOLERANCE:** ≤ 10% at maximum, ≤ 0% at minimum
- **CONTROL:** Isolated contact closure
- **CONTROL TERMINALS:** 5-6
- **VOLTAGE PRESENT AT CONTROL TERMINALS:** 24VDC minimum, 40VDC maximum

**TIMING**

- **OPERATING TEMP:** 0° to 50° C (32° to 120°F)
- **TIME VARIATION VS. TEMP:** ± 5% maximum
- **MOUNTING:** Plug-in
- **TERMINATION:** 12 pin socket
- **HOUSING:** Metal

**PHYSICAL**

- **WIRING**

  **OUTPUT B**
  
<table>
<thead>
<tr>
<th>Wiring Terminal Location</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
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<td>Voltage input (constant)</td>
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<td>Remote adjust (jumper if not used)</td>
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<tr>
<td>Control (starts timing function)</td>
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<td>11</td>
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<tr>
<td>N.O. timed</td>
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<td>N.C. timed</td>
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<td>8</td>
<td>11</td>
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<tr>
<td>Caution: never apply voltage to 3-4-5-6</td>
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</tbody>
</table>

**MOUNTING**

- **PLUG-IN**

**WIRING**

- **OUTPUT**

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
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<th>9</th>
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<th>12</th>
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</thead>
<tbody>
<tr>
<td>Voltage input (constant)</td>
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<td>3</td>
<td>4</td>
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<tr>
<td>Remote adjust (jumper if not used)</td>
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<tr>
<td>Control (starts timing function)</td>
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<td>N.O. timed</td>
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<tr>
<td>N.C. timed</td>
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</tr>
</tbody>
</table>

**ORDERING DATA**

**ORDERING CODE**

- **1012 - 1 - G - 1 - B**
- **OP6**

**BASIC MODEL NUMBER**

- **1012**

**INPUT VOLTAGE**

- **120 VAC**
- **24 VAC**

**TIME RANGE**

- **A:** 0.06-10
- **B:** 0.06-25
- **C:** 0.06-50
- **D:** 0.06-1.0
- **E:** 0.06-2.5
- **F:** 0.06-5.0
- **G:** 0.06-10.0
- **H:** 0.06-25.0
- **L:** 0.5-250
- **M:** 0.5-500
- **N:** 0.5-100
- **W:** (fixed time)

**Note:** Specify **W**; desired fixed time set by factory

**TIMING FUNCTION**

- **1** On delay
- **2** Off Delay
- **4** Pulsed Interval
- **5** Maintained Interval

**OUTPUT**

- **B Relay DPDT
**

**OPTION** (if desired)

- **OP6 Timing indication light**

**ACCESSORIES**

- See accessory section for details
- Potentiometers: RP201 - RP210
- Locking attachment: RP217
- Reference dial: RP216
- 12 pin socket: RP301
  (one included with unit)

---

**On Delay**

**Off Delay**

**Pulsed Interval**

**Maintained Interval**

The 1012 is easy to install or replace, keeping downtime to a minimum. The 12 pin base allows both DPDT output and remote adjust connections.
Models 1013UL and 1013CSA

On Delay
Off Delay
Pulsed Interval
Maintained Interval

All-Purpose Design is economical and useful in a variety of industrial applications.

UL File No. E50957
CSA File No. LR92815

ORDERING DATA

ORDERING CODE 1013 - 1 - G - 1 - B

BASIC MODEL NUMBER
1013
1013UL
1013CSA

INPUT VOLTAGE
120VAC

TIME RANGE (Secs)
A 0.06-0.10 F 0.06-5.0 L 0.5-250
B 0.06-0.25 G 0.06-10.0 M 0.5-500
C 0.06-0.50 H 0.06-25.0 W Fixed time
D 0.06-1.0 J 0.5-50.0 (see note)
E 0.06-2.5 K 0.5-100

NOTE: Specify W and desired fixed time. Factory will set time within 5%

TIMING FUNCTION
1 On delay 4 Pulsed interval
2 Off delay * 5 Maintained interval
*Not available on CSA units

OUTPUT
B Relay 1 N.O. 1 N.C.

OPTION (1013UL/CSA only, now included on 1013 units)

APPLICATIONS
See accessory section for details
Potentiometers RP-201 thru RP-210
Reference dial RP-216

WIRING

Wiring Terminal Location

DIMENSIONS (Inches (millimeters))

1013 and 1013UL mounting dimensions are identical, Model 1013 shown
MODEL 1013U  
BASE MOUNT  
INDUSTRIAL SOLID STATE  
TIMER

### Specifications

<table>
<thead>
<tr>
<th>Input</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Voltage:</strong> 120VAC</td>
</tr>
<tr>
<td><strong>Frequency:</strong> 50/60 Hz</td>
</tr>
<tr>
<td><strong>Tolerance (Voltage):</strong> ± 15% of nominal</td>
</tr>
<tr>
<td><strong>Power Consumption:</strong> 10 VA maximum</td>
</tr>
<tr>
<td><strong>Transient Protection:</strong> Isolation transformer</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type:</strong> Electromechanical relay</td>
</tr>
<tr>
<td><strong>Rating:</strong> 10A @ 240VAC maximum</td>
</tr>
<tr>
<td><strong>Available Types:</strong> On delay, Off delay, Normally Open, Normally Closed (Selectible)</td>
</tr>
<tr>
<td><strong>Repeat Accuracy:</strong> ± 1% of setting</td>
</tr>
<tr>
<td><strong>Reset Time:</strong> 50 msec minimum</td>
</tr>
<tr>
<td><strong>Indication:</strong> 1013 - LED, ON when timing</td>
</tr>
<tr>
<td><strong>Timing Ramp:</strong> 0.02 sec minimum time - 100kΩ/sec</td>
</tr>
<tr>
<td><strong>Time Range:</strong> 0.5 sec minimum time - 10kΩ/sec</td>
</tr>
<tr>
<td><strong>Time Range:</strong> 0.02 to 250 secs in 12 ranges</td>
</tr>
<tr>
<td><strong>Range Tolerance:</strong> ± 10%</td>
</tr>
<tr>
<td><strong>Control:</strong> Isolated contact closure</td>
</tr>
<tr>
<td><strong>Voltage Present at Control Terminals:</strong> 24VDC minimum, 40VDC maximum</td>
</tr>
</tbody>
</table>

### Ordering Data

<table>
<thead>
<tr>
<th>Code</th>
<th>1013U - 1 - L - 3 - C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Basic Model Number:</strong></td>
<td>1013U</td>
</tr>
<tr>
<td><strong>Input Voltage:</strong></td>
<td>120VAC</td>
</tr>
<tr>
<td><strong>Time Range (Secs):</strong></td>
<td>E 0.02-2.5</td>
</tr>
<tr>
<td>**H 0.3-30</td>
<td></td>
</tr>
<tr>
<td>**L 0.5-250</td>
<td></td>
</tr>
<tr>
<td><strong>Timing Function:</strong></td>
<td>3 Selectable</td>
</tr>
<tr>
<td><strong>Output:</strong></td>
<td>C Relay 1 N.O. or 1 N.C., 1.5 amp AC</td>
</tr>
<tr>
<td><strong>APPLICABLE ACCESSORIES:</strong></td>
<td>See accessory section for details</td>
</tr>
<tr>
<td><strong>Potentiometers:</strong></td>
<td>RP-201 thru RP-210</td>
</tr>
</tbody>
</table>

### Wiring

- **Output C:** L1-L2 Voltage input (constant)
- **P1-P2:** Control (starts timing function)
- **1-2:** N.O. instant
- **2-3:** N.C. instant
- **S:** (selectable) timed

### Ease of Use Design

Ease of Use Design and selectable output makes this unit extremely flexible. This unit optically isolated control circuit operates at 120 VAC and has transient protection to 1500 volts.

### Ordering Code

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1013U</td>
<td>120VAC Input Voltage</td>
</tr>
<tr>
<td>E</td>
<td>0.02-2.5 Time Range</td>
</tr>
<tr>
<td>H</td>
<td>0.3-30 Time Range</td>
</tr>
<tr>
<td>L</td>
<td>0.5-250 Time Range</td>
</tr>
<tr>
<td>3</td>
<td>Selectable Timing Function</td>
</tr>
<tr>
<td>C</td>
<td>Relay 1 N.O. or 1 N.C., 1.5 amp AC</td>
</tr>
</tbody>
</table>

### Physical

- **Operating Temp.:** -32° to 71°C (-25° to 160°F)
- **Timing Variation vs. Temp.:** ± 5% maximum
- **Mounting:** Base mount
- **Termination:** Terminal block on face of timer
- **Housing:** Metal

### Output C

- Voltage input (constant)
- Control (starts timing function)
- N.O. instant
- N.C. instant
- Selectable timed

### Dimensions

- **Inches (millimeters):**
  - Width: 2.5 (64.1)
  - Depth: 1.00 (25.4)
  - Height: 3.75 (95.3)

- **Depth:** 5.0127
**INDUSTRIAL SOLID STATE TIMER**

**MODEL 1014UL SP13A**

**BASE MOUNT**

**SPECIFICATIONS**

- **VOLTAGE:** 120VAC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ± 15% of nominal
- **POWER CONSUMPTION:** 10 VA maximum
- **TRANSIENT PROTECTION:** Isolation transformer

**INPUT**

- **TYPE:** Two electromechanical relays
- **RATING:** 10A @ 240VAC maximum

**OUTPUT**

- **AVAILABLE TYPES:** On delay, Off delay
- **REPEAT ACCURACY:** ± 1% of setting
- **RESET TIME:** 50 msec minimum
- **INDICATION:** LED, ON when timing
- **TIMING RAMP:** 0.06 sec minimum time - 100kΩ/sec
  - 0.5 sec minimum time - 10kΩ/sec
- **TIME RANGE:** 0.06 to 500 secs in 12 ranges
- **RANGE TOLERANCE:** ≤ 10%
- **CONTROL:** Isolated contact closure or AC proximity sensor
- **CONTROL TERMINALS:** A-C
- **VOLTAGE PRESENT AT CONTROL TERMINALS:** Same as input voltage

**PHYSICAL**

- **OPERATING TEMP:** 0° to 50° C (32° to 120°F)
- **TIMING VARIATION VS. TEMP:** ± 5% maximum
- **MOUNTING:** Base mount
- **TERMINATION:** Terminal blocks on face of timer
- **HOUSING:** Metal

**WIRING**

**OUTPUT**

- A-B Voltage input (constant)
- A-C Control (starts timing)
- 5-6 Remote adjust (never apply voltage)
- 7-8 N.O. instant
- 9-10 N.C. instant
- 12-13 N.O. timed
- 14-15 N.O. timed

**DIMENSIONS**

- Inches (millimeters)

---

**ORDERING CODE**

1014UL - 1 - F - 2 - SP13A

**BASIC MODEL NUMBER**

1014UL

**INPUT VOLTAGE**

1 120VAC

**TIME RANGE (Secs)**

- A 0.06-0.10 F 0.06-5.0 L 0.5-250
- B 0.06-0.25 G 0.06-10.0 M 0.5-500
- C 0.06-0.50 H 0.06-25.0 W Fixed time
- D 0.06-1.0 J 0.5-50.0 (see note)
- E 0.06-2.5 K 0.5-100

**Remote Adjust** between terminals 5 and 6 will adjust timing as follows:

- 100K resistor 1% 1 sec.
- 73.2K resistor 1% 732 msec
- 47.5K resistor 1% 475 msec
- 21K resistor 1% 210 msec

**TIMING FUNCTION**

2 Off delay

**OUTPUT**

SP13A

**APPLICABLE ACCESSORIES**

See accessory section for details

- Potentiometers: RP-201 thru RP-210
- Reference dial: RP-216
- Locking attachment: RP-217

---

800-233-9354 or 931-796-3050  Fax: 931-796-3956  www.issc-kanson.com
**SPECIFICATIONS**

**INPUT**
- **VOLTAGE:** 120VAC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ± 15% of nominal
- **POWER CONSUMPTION:** 10 VA maximum
- **TRANSIENT PROTECTION:** Isolation transformer

**OUTPUT**
- **TYPE:** Two electromechanical relays
- **RATING:** 10A @ 240VAC maximum

**AVAILABLE TYPES:** On delay, Off delay

**REPEAT ACCURACY:** ± 1% of setting

**RESET TIME:** 50 msec minimum

**INDICATION:** LED, ON when timing

**TIMING RAMP:** 0.06 sec minimum time - 100kΩ/sec
- 0.5 sec minimum time - 10kΩ/sec

**TIME RANGE:** 0.06 to 500 secs in 12 ranges

**RANGE TOLERANCE:** ± 10%

**CONTROL:** Isolated contact closure or AC proximity sensor

**CONTROL TERMINALS:** A-C

**VOLTAGE PRESENT AT CONTROL TERMINALS:**
- Same as input voltage

**OPERATING TEMP:** 0° to 50° C (32° to 120°F)

**CONTROL TERMINALS:**
- **A-C**

**VOLTAGE PRESENT AT CONTROL TERMINALS:**
- Same as input voltage

**DIMENSIONS**
- **WIRING**
  - **A-B Voltage input**
    - 3-4 N.O. instant
    - (constant) 4-5 N.C. instant
  - **A-C Control**
    - 6-7 N.O. timed (starts timing)
  - **1-2 Remote adjust**
    - 9-10 N.O. timed (jumper if not used)
  - **A-B Voltage input**
    - 2-3 N.C. instant
    - (constant) 4-5 N.O. instant
  - **A-C Control**
    - 6-7 N.O. timed (starts timing)
  - **1-2 N.O. instant**
    - 9-10 N.O. timed

**UL File No. E50957**

**ORDERING CODE**

**INPUT VOLTAGE**
- **120VAC**

**TIME RANGE**
- **(Secs)**
  - A 0.06-0.10 F 0.06-5.0 L 0.5-250
  - B 0.06-0.25 G 0.06-10.0 M 0.5-500
  - C 0.06-0.50 H 0.06-25.0 W Fixed time
  - D 0.06-1.0 J 0.5-50.0 (see note)
  - E 0.06-2.5 K 0.5-100

**NOTE:** Specify W and desired fixed time. Factory will set time within 5%

**TIMING FUNCTION**
- **1** On delay
- **2** Off delay

**OUTPUT**
- **A**
  - Instant Relay 1 SPDT
  - Timed Relay 1 SPDT, 1 N.O.
- **B**
  - Instant Relay 1 SPDT, 1 N.O.
  - Timed Relay 1 SPDT, 1 N.O.

**APPLICABLE ACCESSORIES**
- Potentiometers RP-201 thru RP-210
- Reference dial RP-216
- Locking attachment RP-217
INDUSTRIAL SOLID STATE TIMER

MODEL 1017
PLUG-IN

SPECIFICATIONS

INPUT

VOLTAGE: 120VAC/DC
FREQUENCY: 50/60 Hz or DC
TOLERANCE (VOLTAGE): ± 10% of nominal
POWER CONSUMPTION: 5 VA maximum
TRANSIENT PROTECTION: MOV

OUTPUT

TYPE: Electromechanical relay
RATING: 5 A @ 240VAC maximum

AVAILABLE TYPES: On delay
REPEAT ACCURACY: ± 1% of setting or 8 msec, whichever is greater.
RESET TIME: 40 msec minimum
INDICATION: LED - ON when timing
TIMING RAMP: 0.025 sec minimum time - 1MΩ/sec
0.1 sec minimum time - 100kΩ/sec
TIME RANGE: 0.025 to 10 sec in 4 ranges
RANGE TOLERANCE: ± 30% at maximum
≤ 0% at minimum
CONTROL: Power applied to input initiates timing cycle
CONTROL TERMINALS: 2-7
VOLTAGE PRESENT AT CONTROL TERMINALS: Same as input voltage

OPERATING TEMP: 0° to 50° C (32° to 120°F)
TIMING VARIATION VS. TEMP: ± 5% maximum or
8 msec, whichever is greater

MOUNTING: Plug-in
TERMINATION: 8 pin socket
HOUSING: Plastic

PHYSICAL

WIRING

OUTPUT 1

1 2-7 Voltage input (control)
1-3 N.O. timed
1-4 N.C. timed
8-6 N.O. timed
8-5 N.C. timed

OUTPUT 2

1 2-7 Voltage input (control)
1-3 N.O. timed
1-4 N.C. timed
5-6 Remote adjust (jumper if not used)
8 Not used

Caution: Never apply voltage to 5-6

Wiring Terminal Location
8 Pin Socket

DIMENSIONS

Inches (millimeters)

UL File No. ES0957
CSA File No. LR92815

On Delay

Small, Plug-in Unit saves space and installation time.
Input Power Actuates timing sequence, eliminating the
need for a separate control circuit. Removing power auto-
matically resets timing sequence.

ORDERING DATA

ORDERING CODE

1017 - 5 - 2 - 1 - OP1

BASIC MODEL NUMBER

1017

TIME RANGE (Secs)

1 0.025-1.0
2.5 0.025-2.5
5 0.025-5
10 0.1 - 10

See Model 1071 for other time
ranges, outputs, and input voltages.

OUTPUT

1 Relay DPDT (8 pin plug)
2 Relay SPDT w/remote adjust (8 pin plug)

INPUT VOLTAGE

1 120VAC/DC

OPTION (If desired)

OP1 Omit potentiometer from unit
(applies to output 2 only)
Timing indication light (previously OP10) is
now standard on model 1017

APPLICABLE ACCESSORIES

See accessory section for details
Potentiometers RP-204, RP-207 thru RP-210
Reference dial RP-216
Locking attachment RP-217
8 pin socket RP-302
Hold down clip RP-305

UL File No. ES0957
CSA File No. LR92815
**INDUSTRIAL SOLID STATE TIMER**

### MODEL 1017 SP7

**BASE MOUNT**

#### SPECIFICATIONS

**INPUT**
- **VOLTAGE:** 24V AC/DC, 48V AC/DC, 120VAC/125VDC, 240VAC/250VDC
- **TOLERANCE (VOLTAGE):** ± 15% of nominal, ± 10% for 24V
- **POWER CONSUMPTION:** 16 W maximum
- **TRANSIENT PROTECTION:** TVS

**OUTPUT**
- **TYPE:** Electromechanical relay
- **RATING:** 3A @ 150 VDC maximum
  10A @ 240 VAC 80% PF maximum
- **AVAILABLE TYPE:** On delay
- **REPEAT ACCURACY:** ± 1% of setting
- **RESET TIME:** 50 msec minimum
- **TIME RANGE:** 1.5 to 120 cycles in 4 ranges or 0.5 to 300 sec in 4 ranges
- **RANGE TOLERANCE:** ≤ 10%

### WIRING

**OUTPUT A**
- A-B Voltage input
- 1-2 N.C. timed(1 positive)
- 3-4 N.O. timed(4 positive)

**OUTPUT B**
- A-B Voltage input
- 2-1 N.C. timed(2 positive)
- 2-3 N.O. timed(2 positive)
- D-4 N.C. timed(D positive)
- D-C N.O. timed(D positive)

In DC applications indicated polarity provides optimum arc suppression

### ORDERING DATA

**ORDERING CODE**

1017 SP7 - B - 4 - B

**BASIC MODEL NUMBER**

1017-SP7

**INPUT VOLTAGE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Voltage</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>24V AC/DC</td>
</tr>
<tr>
<td>A</td>
<td>48V AC/DC</td>
</tr>
<tr>
<td>B</td>
<td>120VAC/125VDC</td>
</tr>
<tr>
<td>C</td>
<td>240VAC/250VDC</td>
</tr>
<tr>
<td>E</td>
<td>208VAC/208VDC</td>
</tr>
</tbody>
</table>

**TIME RANGE**

<table>
<thead>
<tr>
<th>Code</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.5-30 Cycles</td>
</tr>
<tr>
<td>2</td>
<td>1.5-45 Cycles</td>
</tr>
<tr>
<td>3</td>
<td>1.5-60 Cycles</td>
</tr>
<tr>
<td>4</td>
<td>1.5-120 Cycles</td>
</tr>
</tbody>
</table>

(*Cycles at 60Hz)

**TIMING FUNCTION**

On delay

**OUTPUT**

A Relay 1 N.O., 1 N.C.
B Relay DPDT

**ACCESSORIES**

See accessory section for details

Locking attachment RP-217

---

**On Delay**

The 1017-SP7 is a special purpose, limited duty, on delay timer for electric utility applications capable of high voltage DC switching. It is equipped with transient protection and housed in a metal enclosure for maximum noise immunity. The timing dial is calibrated in AC cycles at 60Hz. or seconds.
Off Delay
Pulsed Interval
Maintained Interval

The Reliable 1018 is a general purpose off delay timer. The standard unit can be converted to operate in pulsed interval timing function, or it can be ordered with option 13 to operate in the maintained interval timing function.

Small, Plug-in Unit saves space and installation time.

UL File No. E50957

### ORDERING DATA

**ORDERING CODE**

1018 - A - 1 OP13

**BASIC MODEL NUMBER**

1018

**TIME RANGE** (Secs)

<table>
<thead>
<tr>
<th>Letter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.06-1.0</td>
</tr>
<tr>
<td>B</td>
<td>0.5-10.0</td>
</tr>
<tr>
<td>C</td>
<td>5-100</td>
</tr>
<tr>
<td>D</td>
<td>5-250</td>
</tr>
<tr>
<td>E</td>
<td>5-500</td>
</tr>
<tr>
<td>J</td>
<td>5-1000</td>
</tr>
</tbody>
</table>

**OUTPUT**

1. Relay DPDT (11 pin plug std, 8 pin for OP13)
2. Relay SPDT w/remote adjust (11 pin plug)

**OPTION** (If desired)

- OP1 (Omit potentiometer from unit) Is now standard on the model 1018 with output 2.
- OP4 24VAC/DC input
- OP13 Maintained interval timing function - Type 5
  (Only available with 8 pin plug and output 1)

**APPLICABLE ACCESSORIES**

See accessory section for details

- Potentiometers: RP-204, RP-207 thru RP-210
- Reference dial: RP-216
- Locking attachment: RP-217
- 8 pin socket: RP-302
- 11 pin socket: RP-303
- Hold down clip: RP-305

---

**SPECIFICATIONS**

**VOLTAGE:** 120VAC/DC, 24VAC/DC

**FREQUENCY:** 50/60 Hz or DC

**TOLERANCE (VOLTAGE):** ± 10% of nominal

**POWER CONSUMPTION:** 3 VA maximum

**TRANSIENT PROTECTION:** MOV

**TYPE:** Electromechanical relay

**RATING:** 10 A @ 240VAC maximum

**TYPES:**

- Off delay, Pulsed interval*, Maintained interval
- REPEAT ACCURACY: ± 1% of setting or 8 msecs, whichever is greater.
- RESET TIME: 50 msec minimum - Types 2 & 4, 100 msec minimum - Type 5
- INITIATE TIME: 5 ms minimum - Types 2 & 4 only
- INDICATION: LED - ON when timing
- TIMING RAMP: 0.06 sec minimum time - 1MΩ/sec
  0.5 sec minimum time - 100kΩ/sec
  5 sec minimum time - 10kΩ/sec

**TIME RANGES:**

<table>
<thead>
<tr>
<th>Letter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.06-1.0 L 0.06-2.5</td>
</tr>
<tr>
<td>B</td>
<td>0.5-10.0 M 0.5-25.0</td>
</tr>
<tr>
<td>C</td>
<td>5-100    N 0.5-50.0</td>
</tr>
<tr>
<td>D</td>
<td>5-250    R 0.06-5.0</td>
</tr>
<tr>
<td>E</td>
<td>5-500    S 0.12-1.0</td>
</tr>
<tr>
<td>J</td>
<td>5-1000</td>
</tr>
</tbody>
</table>

**TIME RANGES ACCURACY:**

- ≤ 30% at maximum,
- ≤ 0% at minimum

**CONTROL:** Isolated contact closure

**CONTROL TERMINALS:** 5-6 (Types 2 and 4)
  2-7 (for option 13 - Type 5)

**VOLTAGE PRESENT AT CONTROL TERMINALS:**

- 70VDC (120VAC/DC - Types 2 and 4)
- 30VDC (24VAC - Types 2 and 4)
- 24VDC (24VDC - Types 2 and 4)
- Same as input voltage (Type 5)

*Shipped as an off delay. Remove jumper clip (see dimensions) to convert to pulsed interval

**OPERATING TEMP:** 0° to 50° C (32° to 120°F)

**TIMING VARIATION VS. TEMP:** ± 5% maximum or 8 msec, whichever is greater (up to 500 secs)

**MOUNTING:** Plug-in

**TERMINATION:** 8 or 11 pin socket

**HOUSING:** Plastic

**WIRING**

**OUTPUT 1**

- 2-10 Voltage input (constant)
- 1-3 N.O. timed
- 1-4 N.C. timed
- 11-9 N.O. timed
- 11-8 N.C. timed
- 5-6 Control
- 7 Not used

**OUTPUT 2**

- 2-10 Voltage input (constant)
- 1-3 N.O. timed
- 1-4 N.C. timed
- 8-9 Remote adjust
- 5-6 Control
- 7-11 Not used

**OPTION 13 (output 1 only)**

- Maintained interval 1-4 N.C. timed
- 2-7 Voltage input 8-9 N.C. timed (control)
- 8-6 N.O. timed
- 1-3 N.O. timed

**Caution:** Never apply voltage to 5-6-8-9

**DIMENSIONS**

Indches (millimeters)
**Kanson Electronics, Inc.**

**INDUSTRIAL SOLID STATE TIMER**

**Kanson Electronics, Inc.**

1000-233-9354 or 931-796-3050 Fax: 931-796-3956 www.issc-kanson.com

**MODEL 1019**

**INDUSTRIAL SOLID STATE TIMER**

**SPECIFICATIONS**

**INPUT**
- **VOLTAGE:** 120VAC/DC
- **FREQUENCY:** 50/60 Hz or DC
- **TOLERANCE (VOLTAGE):** ± 10% of nominal
- **POWER CONSUMPTION:** 3 VA maximum
- **TRANSIENT PROTECTION:** MOV

**OUTPUT**
- **TYPE:** Electromechanical relay
- **RATING:** 10 A @ 240VAC maximum

**TIMING**
- **TYPE:** On delay
- **REPEAT ACCURACY:** ± 1% of setting
- **RESET TIME:** 40 msec minimum
- **TIMING RAMP:**
  - 0.02 sec min time - 1MΩ/sec
  - 0.06 sec min time - 100kΩ/sec
  - 0.5 sec min time - 10kΩ/sec
- **TIME RANGE:** 0.02 to 500 secs in 6 ranges
- **RANGE TOLERANCE:**
  - ± 30% at maximum
  - ≤ 0% at minimum
- **CONTROL:** Application of power initiates timing cycle
- **CONTROL TERMINALS:** A-B
- **VOLTAGE PRESENT AT CONTROL TERMINALS:** Same as input voltage

**PHYSICAL**
- **OPERATING TEMP:** -40° to 50° C (32° to 120°F)
- **TIMING VARIATION VS. TEMP:** ± 5% maximum
- **MOUNTING:** Plug-in
- **TERMINATION:** 11 pin blade socket
- **HOUSING:** Plastic

**ORDERING DATA**

**ORDERING CODE**

<table>
<thead>
<tr>
<th>1019</th>
<th>10</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
</table>

**BASIC MODEL NUMBER**

| 1019 |

**TIME RANGE (Secs)**

| 1 | 0.02-1.0 |
| 5 | 0.02-5.0 |
| 10 | 0.06-10.0 |

**OUTPUT**

1. Relay DPDT
2. Relay DPDT w/remote adjust
3. Relay 3PDT

**INPUT**

2. 120VAC/DC

**APPLICABLE ACCESSORIES**

- Potentiometers: RP-207, RP-209
- Reference dial: RP-216
- Locking attachment: RP-217
- 11 pin socket: RP-304
- Hold down clip: RP-306

**On Delay**

Small, Economical plug-in unit saves space and installation time.

Input Power Actuates timing sequence, eliminating the need for a separate control circuit. Removing power automatically resets timing sequence.

UL File No. E50957

**WIRING**

**OUTPUT 1**
- A-B Voltage input
- 4-7 N.O. timed
- 1-7 N.C. timed
- 6-9 N.O. timed
- 3-9 N.C. timed
- 2-5-8 Not used

**OUTPUT 3**
- A-B Voltage input
- 4-7 N.O. timed
- 1-7 N.C. timed
- 6-9 N.O. timed
- 3-9 N.C. timed
- 2-5 Remote adjust (jumper if not used)
- 8 Not used

**OUTPUT 4**
- A-B Voltage input
- 6-9 N.O. timed
- 1-7 N.C. timed
- 2-8 N.C. timed
- 4-7 N.O. timed
- 5-8 N.O. timed

**DIMENSIONS**

**UL File No. E50957**
Motor Excess Run Protection

The 1020 is a special purpose on delay timer for electric motor over-run protection. It is equipped with transient protection and housed in a metal enclosure for maximum noise immunity. LED shows timed out condition, and has a reset button.

ORDERING DATA

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>1020 - B - W - B</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>BASIC MODEL NUMBER</th>
<th>1020</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>INPUT VOLTAGE</th>
<th>D 24V AC/DC</th>
<th>A 48V AC/DC</th>
<th>B 120VAC/125VDC</th>
<th>C 240VAC/250VDC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TIME RANGE</th>
<th>W Factory Fixed 3 min Available from 0.5 to 20 min. Customer specified</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TIMING FUNCTION</th>
<th>On delay</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>OUTPUT</th>
<th>A-B Voltage input</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>OUTPUT</th>
<th>A-B Voltage input</th>
</tr>
</thead>
</table>

OUTPUT A

| 1-2 N.C. timed(1 positive) | 3-4 N.O. timed(4 positive) |

OUTPUT B

| 2-1 N.C. timed(2 positive) | 2-3 N.O. timed(2 positive) | D-4 N.O. timed(D positive) | D-C N.O. timed(D positive) |

In DC applications indicated polarity provides optimum arc suppression.

WIRING

Wiring Terminal Location

DIMENSIONS

Inches (millimeters)
**Kanson Electronics, Inc.**

1200-233-9354   or   931-796-3050   Fax: 931-796-3956      www.issc-kanson.com

## INDUSTRIAL SOLID STATE TIMER

### MODEL 1025

**BASE MOUNT**

### SPECIFICATIONS

<table>
<thead>
<tr>
<th><strong>INPUT</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VOLTAGE:</strong></td>
<td>48V AC/DC, 120VAC/125VDC, 240VAC/250VDC</td>
</tr>
<tr>
<td><strong>TOLERANCE (VOLTAGE):</strong></td>
<td>± 15% of nominal</td>
</tr>
<tr>
<td><strong>POWER CONSUMPTION:</strong></td>
<td>16 W maximum</td>
</tr>
<tr>
<td><strong>TRANSIENT PROTECTION:</strong></td>
<td>MOV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>OUTPUT</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TYPE:</strong></td>
<td>Electromechanical relay</td>
</tr>
<tr>
<td><strong>RATING:</strong></td>
<td>7.5A maximum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>TIMING</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AVAILABLE TYPE:</strong></td>
<td>On delay</td>
</tr>
<tr>
<td><strong>REPEAT ACCURACY:</strong></td>
<td>± 1% of setting</td>
</tr>
<tr>
<td><strong>RESET TIME:</strong></td>
<td>50 msec minimum</td>
</tr>
<tr>
<td><strong>TIME RANGE:</strong></td>
<td>Factory Fixed to customer specifications. Available from 0.5 to 20 min.</td>
</tr>
<tr>
<td><strong>RANGE TOLERANCE:</strong></td>
<td>≤ 10% at maximum, ≤ 0% at minimum</td>
</tr>
</tbody>
</table>

| **OPERATING TEMP:** | -40° to 65° C (-40° to 150°F) |
| **TIMING VARIATION VS. TEMP:** | ± 5% maximum |

<table>
<thead>
<tr>
<th><strong>PHYSICAL</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MOUNTING:</strong></td>
<td>Base mount</td>
</tr>
<tr>
<td><strong>TERMINATION:</strong></td>
<td>Terminal blocks on face of timer</td>
</tr>
<tr>
<td><strong>HOUSING:</strong></td>
<td>Metal</td>
</tr>
<tr>
<td><strong>HI-POT:</strong></td>
<td>1500V terminals to case, 1000V between open contacts</td>
</tr>
</tbody>
</table>

### WIRING

#### OUTPUT C

- **A-B Voltage input**
  - 2-1 N. C. timed(2 positive)
  - 2-3 N.O. timed(2 positive)
  - 5-4 N. C. timed(5 positive)
  - 5-6 N.O. timed(5 positive)
  - 8-7 N. C. timed(8 positive)
  - 8-9 N.O. timed(8 positive)

- **Motor Excess Run Protection - 6PDT**
  - 11-10 N. C. timed(11 positive)
  - 11-12 N.O. timed(11 positive)
  - 14-13 N.C. timed(14 positive)
  - 14-15 N.O. timed(14 positive)
  - 17-16 N.C. timed(17 positive)
  - 17-18 N.O. timed(17 positive)

- In DC applications indicated polarity provides optimum arc suppression

### DIMENSIONS

<table>
<thead>
<tr>
<th>Inches (millimeters)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>28 (7)</td>
<td></td>
</tr>
<tr>
<td>5.24 (133)</td>
<td></td>
</tr>
<tr>
<td>4.41 (112)</td>
<td></td>
</tr>
</tbody>
</table>

### ORDERING DATA

<table>
<thead>
<tr>
<th><strong>ORDERING CODE</strong></th>
<th>1025 - B - 3 - B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BASIC MODEL NUMBER</strong></td>
<td>1025</td>
</tr>
<tr>
<td><strong>INPUT VOLTAGE</strong></td>
<td></td>
</tr>
<tr>
<td>A 48V AC/DC</td>
<td></td>
</tr>
<tr>
<td>B 120VAC/125VDC</td>
<td></td>
</tr>
<tr>
<td>C 240VAC/250VDC</td>
<td></td>
</tr>
<tr>
<td><strong>TIME RANGE</strong></td>
<td></td>
</tr>
<tr>
<td>3 Factory Fixed 3 min</td>
<td></td>
</tr>
<tr>
<td>Available from 0.5 to 20 min.</td>
<td></td>
</tr>
<tr>
<td>Customer specified</td>
<td></td>
</tr>
<tr>
<td><strong>TIMING FUNCTION</strong></td>
<td>On delay</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td>C Relay 6PDT</td>
</tr>
</tbody>
</table>

The 1025 is a special purpose on delay timer for electric motor over-run protection featuring 6 normally open and 6 normally closed sets of contacts. It is equipped with transient protection and housed in a metal enclosure for maximum noise immunity. LED show’s timed out condition, and has a reset button.
Pulsed Off-On
One Cycle
Maintained Off-On
One Cycle

Plug-in DPDT relay output can be quickly replaced. The 1030 is especially useful in applications which require fast timing cycle rate and numerous operations in a short period of time.

ORDERING DATA

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>1030 - 1 - G - G - 6 - B</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC MODEL NUMBER</td>
<td>1030</td>
</tr>
<tr>
<td>INPUT VOLTAGE</td>
<td>1 120VAC  2 240VAC  3 24VAC</td>
</tr>
<tr>
<td>TIME RANGE (Secs)</td>
<td>D 0.06-1.0  J 0.5-50  E 0.06-2.5  K 0.5-100  F 0.06-5.0  L 0.5-250  G 0.06-10  M 0.5-500  H 0.06-25</td>
</tr>
<tr>
<td>NOTE:† On and Off times must have same minimum time.</td>
<td></td>
</tr>
</tbody>
</table>

TIMING FUNCTION
6 Pulsed off/on
7 Maintained off/on
8 On delay/Off delay

OUTPUT B
A-B Voltage input (constant)
C-D Remote adjust for OFF time, (jumper if not used)
E-F Control (starts timing function)
G-H Remote adjust for ON time, (jumper if not used)
1-3 N.O. timed
1-4 N.C. timed
5-8 N.C. timed
6-8 N.O. timed

Caution: Never apply voltage to C-D-E-F-G-H

WIRING

DIMENSIONS

VOLTAGE: 120VAC, 24VAC, 240VAC
FREQUENCY: 50/60 Hz
TOLERANCE (VOLTAGE): ± 15% of nominal
POWER CONSUMPTION: 10 VA maximum
TRANSIENT PROTECTION: Isolation transformer (120VAC and 240 VAC only)

AVAILABLE TYPES: Pulsed off-on one cycle, Maintained off-on one cycle, On delay/Off delay
REPEAT ACCURACY: ± 1% of setting
RESET TIME: 50 msec minimum
INDICATION: LED - ON when output energized
TIMING RAMP: 0.06 sec min time - 100kΩ/sec
0.5 sec min time - 10kΩ/sec
TIME RANGE: 0.06 to 500 secs in 9 ranges
RANGE TOLERANCE: ± 10% at max,
CONTROL: Isolated contact closure
CONTROL TERMINALS: E-F
VOLTAGE PRESENT AT CONTROL TERMINALS:
24VDC minimum, 40VDC maximum

OPERATING TEMP: 0° to 50° C (32° to 120°F)
TIMING VARIATION VS. TEMP: ± 5% maximum
MOUNTING: Base mount
TERMINATION: Terminal blocks on face of timer
HOUSING: Metal
**INDUSTRIAL SOLID STATE TIMER**

**MODEL 1032**

**PLUG-IN**

**SPECIFICATIONS**

**INPUT**

- **VOLTAGE:** 120VAC, 24VAC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ± 15% of nominal
- **POWER CONSUMPTION:** 10VA maximum
- **TRANSIENT PROTECTION:** Isolation transformer (120VAC only)

**OUTPUT**

- **TYPE:** Electromechanical relay
- **MECHANICAL LIFE:** 10,000,000 operations
- **ELECTRICAL LIFE:** 300,000 operations
- **RATING:** 10A - 1/6HP at 120VAC, 1/3HP at 240VAC

**AVAILABLE TYPE:** Maintained off-on one cycle, pulsed off-on one cycle, on-off

- **REPEAT ACCURACY:** ± 1% of setting
- **RESET TIME:** 50msec maximum
- **INDICATION:** LED on when output is energized
- **TIMING RAMP:**
  - .06sec minimum time - 100K ohm/sec
  - .5sec minimum time - 10K ohm/sec
- **TIME RANGE:**
  - Off Time: 0.06 to 500 secs in 11 ranges
  - On Time: .5sec minimum time - 10K ohm/sec
- **RANGE TOLERANCE:** ± 10% at maximum, ± 0% at minimum
- **CONTROL:** isolated contact closure
- **CONTROL TERMINALS:** 5-6

**VOLTAGE PRESENT AT CONTROL TERMINALS:** 24VDC minimum, 40VDC maximum

**ORDERING DATA**

**BASIC MODEL NUMBER**

- 1032

**INPUT VOLTAGE**

- 1 120 VAC
- 2 24 VAC

**TIME RANGE** (secs)

- Off Time
- On Time

- B .06-.25 F .06-.50 K .5-100
- C .06-.50 G .06-10.0 L 5-250
- D .06-1.0 H .06-25.0 M 5-500
- E .06-2.5 J .5-50.0

**ORDERING CODE**

- 1032 - 1 - G - G - 8 - B

**DIMENSIONS** Inches (millimeters)

**WIRING**

**OUTPUT B**

- 1-2 Voltage input (constant)
- 3-4 Remote adjust (jumper if not used)
- 5-6 Control (starts timing function)
- 7-8 N.O. timed
- 8-9 N.C. timed
- 10-11 N.O. timed
- 11-12 N.C. timed

**Caution:** never apply voltage to 3-4-5-6

**ACCESSORIES**

See accessory section for details

- Potentiometers: RP201-RP210
- Locking attachment: RP217
- Reference dial: RP216
- 12 pin socket: RP301 (one included with unit)

**The 1032 is easy to install or replace, keeping downtime to a minimum. The 12 pin base allows both DPDT output and remote adjust connections.**
INDUSTRIAL SOLID STATE TIMER

MODEL 1060
BASE MOUNT

ORDERING DATA

ORDERING CODE

1060 - 1 - F - F - 1 - B

BASIC MODEL NUMBER

1060

INPUT VOLTAGE

1 120VAC

TIME RANGE (Secs)

D 0.06-1.0 J 0.5-50
E 0.06-2.5 K 0.5-100
F 0.06-5.0 L 0.5-250
G 0.06-10 M 0.5-500
H 0.06-25

NOTE: † On and Off times must have same minimum time.

TIMING FUNCTION

1 Repeat cycle start Off
2 Repeat cycle start On

OUTPUT

B Relay DPDT
(solid state outputs available as accessories)

APPLICABLE ACCESSORIES
See accessory section for details

Output modules RP-101, RP-103
Potentiometers RP-201 thru RP-210
Reference dial RP-216
Locking attachment RP-217

SPECIFICATIONS

VOLTAGE: 120VAC
FREQUENCY: 50/60 Hz
TOLERANCE (VOLTAGE): ± 15% of nominal
POWER CONSUMPTION: 10 VA maximum
TRANSIENT PROTECTION: Isolation transformer

TYPE: Electromechanical relay (solid state available as an accessory)
RATING: 10A @ 240VAC maximum

TYPE: Repeat cycle (start ON or start OFF)
REPEAT ACCURACY: ± 1% of setting
RESET TIME: 50 msec minimum
INDICATION: Optional LED - ON when output energized

TIMING RAMP: 0.06 sec min time - 100kΩ/sec
0.5 sec min time - 10kΩ/sec
TIME RANGE: 0.06 to 500 secs in 9 ranges
RANGE TOLERANCE: ≤ 10% at max, ≤ 0% at min
CONTROL: Isolated contact closure
CONTROL TERMINALS: E-F
VOLTAGE PRESENT AT CONTROL TERMINALS:
24VDC minimum, 40VDC maximum

OPERATING TEMP: 0° to 50° C (32° to 120°F)
TIMING VARIATION VS. TEMPERATURE: ± 5% max
MOUNTING: Base mount
TERMINATION: Terminal blocks on face of timer
HOUSING: Metal

WIRING

OUTPUT B
A-B Voltage input (constant)
C-D Remote adjust for first time period (jumper if not used)
E-F Control (starts timing function)
G-H Remote adjust for second time period (jumper if not used)
1-3 N.O. timed
1-4 N.C. timed
5-8 N.C. timed
6-8 N.O. timed

Caution: Never apply voltage to C-D-E-F-G-H

DIMENSIONS Inches (millimeters)

Repeat Cycle

Plug-in DPDT relay output can be quickly replaced or interchanged with optional solid state output. The 1060 is especially useful in applications which require a fast timing cycle rate and numerous operations in a short period of time.
**INDUSTRIAL SOLID STATE TIMER**

**ORDERING CODE**

1061 - 1 - E - E - 2 - C OP6

**BASIC MODEL NUMBER**

1061

**ORDERING DATA**

**INPUT VOLTAGE**

120VAC

**TIME RANGE** (Seconds)

<table>
<thead>
<tr>
<th>D</th>
<th>0.06-1.0</th>
<th>J</th>
<th>0.5-50</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>0.06-2.5</td>
<td>K</td>
<td>0.5-100</td>
</tr>
<tr>
<td>F</td>
<td>0.06-5.0</td>
<td>L</td>
<td>0.5-250</td>
</tr>
<tr>
<td>G</td>
<td>0.06-10</td>
<td>M</td>
<td>0.5-500</td>
</tr>
<tr>
<td>H</td>
<td>0.06-25</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** On and Off times must have same minimum time.

**TIMING FUNCTION**

1. Repeat cycle start Off
2. Repeat cycle start On

**OUTPUT**

C Solid State (AC) 1 N.O. 35VA
C2A* Solid State (AC) 1 N.O. 5A (start only)

**OPTION (if desired)**

- OP3* Omit both potentiometers and add remote adjust terminals
- OP6 Timing indication light
- OP7 DC control for rapid recycle - 0.05 sec

*Not available on UL units

**APPLICATION ACCESSORIES**

See accessory section for details

Potentiometers RP-201 thru RP-210
Reference dial RP-216
Locking attachment RP-217

---

**SPECIFICATIONS**

**VOLTAGE:** 120VAC

**FREQUENCY:** 50/60 Hz

**TOLERANCE (VOLTAGE):** ± 15% of nominal

**POWER CONSUMPTION:** 10 VA maximum

**TRANSIENT PROTECTION:** Isolation transformer

**INPUT**

TYPE: Solid state

RATING:

- C output 35VA continuous, 150VA in-rush @ 120VAC
- C2A output 5A continuous, 12.5A in-rush @ 120VAC

**OUTPUT**

TYPE: Repeat cycle (start ON or start OFF)

INDICATION: Optional incandescent light - ON when output energized

TIMING RAMP:

- 0.06 sec min time - 100kΩ/sec
- 0.5 sec min time - 10kΩ/sec

TIME RANGE:

- 0.06 to 500 secs in 9 ranges

RANGE TOLERANCE: ± 10%

CONTROL: Isolated contact closure

CONTROL TERMINALS: E-F

VOLTAGE PRESENT AT CONTROL TERMINALS:

Same as input voltage

24VDC minimum, 40VDC maximum (OP7)

**OPERATING TEMP:** 0° to 50°C (32° to 120°F)

**TIMING VARIATION VS. TEMP:** ± 5% maximum

**MOUNTING:** Base mount

**TERMINATION:** Terminal block on face of timer

**HOUSING:** Metal

---

**WIRING**

<table>
<thead>
<tr>
<th>A-B</th>
<th>Voltage input (constant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-F</td>
<td>Control (starts timing function)</td>
</tr>
<tr>
<td>B-2</td>
<td>N.O. timed output</td>
</tr>
</tbody>
</table>

**OPTION 3**

A-B Voltage input (constant)

C-D Remote adjust for ON time, (jumper if not used)

E-F Control (starts timing function)

3-4 Remote adjust for OFF time, (jumper if not used)

B-2 N.O. timed

**Caution:** Never apply voltage to terminals E-F

---

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 0.170</td>
</tr>
<tr>
<td>1.44</td>
</tr>
<tr>
<td>0.94</td>
</tr>
<tr>
<td>0.875 (22.10)</td>
</tr>
<tr>
<td>2.75 (6.98)</td>
</tr>
<tr>
<td>3.06 (77.7)</td>
</tr>
<tr>
<td>Depth 4.22 (108.0)</td>
</tr>
</tbody>
</table>

---

UL File No. E50957

---

Repeat Cycle

**Totally Solid State** design eliminates moving parts and provides reliable, long-lasting performance.

**Internal Wiring** supplies input power directly to timed output terminals, eliminating the need for an external jumper.

---

Repeat Cycle

**Operating Temp**

0° to 50°C (32° to 120°F)

**Wiring Terminal Location**

ABC DE

1234 F

---

Repeat Cycle

**Operating Temp**

0° to 50°C (32° to 120°F)

**Internal Wiring** supplies input power directly to timed output terminals, eliminating the need for an external jumper.
On Delay

Multi-Range unit is programmable for 8 different time ranges. The 1071 reduces inventory requirements by offering the time range capacity of eight separate timers in one unit.

Input Power Actuates timing sequence, eliminating the need for a separate control circuit. Removing power automatically resets timing sequence.

Input Is Compatible with both standard mechanical switches and solid state proximity sensors.

UL File No. E50957
CSA File No. LR92815

ORDERING CODE

1071 - 2 - P - 1 - A

BASIC MODEL NUMBER

1071

INPUT VOLTAGE

1. 120VAC/DC
2. 24VAC/DC

TIME RANGE (Secs)

P (includes the following time ranges)
0 200-2000 4 0.75-7.5
1 50-500 5 0.2-2.0
2 12-120 6 0.06-.5
3 3-30 7 0.025-0.13
Consult factory for longer time ranges.

TIMING FUNCTION

1. On delay

OUTPUT

A* Relay SPDT w/ remote adjust (8 pin plug)
B Relay DPDT (8 pin plug)
C* Relay SPDT w/remote adjust (11 pin plug)
*Units with remote adjust do not include a potentiometer in the timer. A separate 100kΩ potentiometer must be used with a maximum length of 12 feet of shielded twisted pair wire.

APPLICABLE ACCESSORIES

See accessory section for details
Potentiometer RP-204
Reference dial RP-216
Locking attachment RP-217
8 pin socket RP-302
11 pin socket RP-303
Hold down clip RP-305

SPECIFICATIONS

VOLTAGE: 120VAC/DC, 24VAC/DC
FREQUENCY: 50/60 Hz or DC
TOLERANCE (VOLTAGE): ± 15% of nominal
POWER CONSUMPTION: 4 VA maximum
TRANSIENT PROTECTION: MOV

OUTPUT

TYPE: Electromechanical relay
RATING: 5A @ 240VAC maximum

TIMING

RESET TIME: 40 msec minimum
INDICATION: LED - ON when timing
TIMING RATIO: 10 to 1 potentiometer
TIME RANGE: 8 per unit
RANGE TOLERANCE: ±10% typical
CONTROL: Power actuated or AC proximity sensor
CONTROL TERMINALS: 2-7 (8 pin unit)
2-10 (11 pin unit)
VOLTAGE PRESENT AT CONTROL TERMINALS:
Same as input voltage

OPERATING TEMP: -20° to 70° C (-4° to 158°F)
TIMING VARIATION VS. TEMP: ± 5% maximum
MOUNTING: Plug-in
TERMINATION: 8 or 11 pin socket
HOUSING: Plastic

WIRING

OUTPUT A

2-7 Voltage input (control)
1-3 N.O. timed
1-4 N.C. timed
5-6 Remote adjust
8 Not used

Caution: Never apply voltage to 5-6

OUTPUT B

2-7 Voltage input (control)
1-3 N.O. timed
1-4 N.C. timed
8-6 N.O. timed
8-5 N.C. timed

OUTPUT C

2-10 Voltage input (control)
5-6 Remote adjust
1-3 N.O. timed
1-4 N.C. timed
7 Not used
11-9 N.O. timed

Caution: Never apply voltage to 5-6

DIMENSIONS

Inches (millimeters)

ACCESS TO PROGRAM SWITCH

OCTAL BASE SHOWN
MODEL 2110
BLOCK

INDUSTRIAL SOLID STATE TIMER

Kanson Electronics, Inc.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>INPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLTAGE: 24 to 140 VAC/DC or 100 to 240 VAC/DC</td>
</tr>
<tr>
<td>FREQUENCY: 50/60 Hz or DC</td>
</tr>
<tr>
<td>TOLERANCE (VOLTAGE): ±10% of nominal</td>
</tr>
<tr>
<td>POWER CONSUMPTION: 1VA maximum</td>
</tr>
<tr>
<td>TRANSIENT PROTECTED</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE: Solid State N.O.</td>
</tr>
<tr>
<td>RATING: 1A @ 240VAC/DC max. (10A 1 cycle surge)</td>
</tr>
<tr>
<td>VOLTAGE DROP: 2.5 volts typical at 1A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIMING</th>
</tr>
</thead>
<tbody>
<tr>
<td>TYPE: On delay</td>
</tr>
<tr>
<td>REPEAT ACCURACY: ≤ 0.5%</td>
</tr>
<tr>
<td>RESET TIME: ≤ 50 msec</td>
</tr>
<tr>
<td>TIME RANGE: 0.1 to 10230 seconds in 3 ranges</td>
</tr>
<tr>
<td>TOLERANCE: ±5%</td>
</tr>
<tr>
<td>CONTROL: Power applied to input initiates timing cycle</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PHYSICAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPERATING TEMP: -40° to +80°C (-40° to +175°F)</td>
</tr>
<tr>
<td>TIMING VARIATION VS. TEMP: ± 5% maximum</td>
</tr>
<tr>
<td>MOUNTING: Surface with #8 or #10 screw</td>
</tr>
<tr>
<td>TERMINATION: 0.250 inch male quick connect terminals</td>
</tr>
<tr>
<td>HOUSING: Plastic</td>
</tr>
</tbody>
</table>

WIRING

*Load may be connected to either side of line.

WARNING: Connection of power without a series load will cause permanent damage.

OPERATION

ORDERING DATA

ORDERING CODE
BASIC MODEL NUMBER
2110

<table>
<thead>
<tr>
<th>INPUT VOLTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 24 to 140VAC/DC</td>
</tr>
<tr>
<td>2 100 to 240VAC/DC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME RANGE in seconds</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 to 102.3</td>
</tr>
<tr>
<td>1.0 to 1023</td>
</tr>
<tr>
<td>10 to 10230</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIMING FUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  On delay</td>
</tr>
<tr>
<td>C  Solid state N.O. 1 Amp max.</td>
</tr>
</tbody>
</table>

The 2110 features simple two-wire installation. The compact encapsulated timer is switch programmable from 0.1 to 10230 seconds in three time ranges. Two power supply ranges cover operating voltages from 24 to 240 VAC/DC with a reliable 1 Amp solid state output.
INDUSTRIAL SOLID STATE TIMER
MODEL 1505
BASE MOUNT

Kanson Electronics, Inc.
800-233-9354 or 931-796-3050 Fax: 931-796-3956 www.issc-kanson.com

SPECIFICATIONS

VOLTAGE: 18V to 64V AC/DC
100VDC to 345VDC
90VAC to 260VAC

POWER CONSUMPTION: 16 W maximum

TRANSIENT PROTECTION: TVS

TYPE: Electromechanical relay

RATING: 3A @ 150 VDC maximum
10A @ 240 VAC 80% PF maximum

ORDERING DATA

ORDERING CODE
1505 - B - 4 - B

BASIC MODEL NUMBER
1505

INPUT VOLTAGE
A 18V to 64V AC/DC
B 100V to 345V DC
90V to 260V AC

TIME RANGE
1 1.5-30 Cycles*
2 1.5-45 Cycles*
3 1.5-60 Cycles*
4 1.5-120 Cycles*

(*Cycles at 60Hz)

OUTPUT TIMING

OPERATING TEMP: -40° to 65°C (-40° to 150°F)

TIMING VARIATION VS. TEMP: ± 5% maximum

MOUNTING: Base mount, Zinc Plated Steel

TERMINATION: Terminal blocks on face of timer

HOUSING: Powder Coated Steel

HI-POT: 1500V terminals to case, 1200V between open contacts

NOTE: Never apply HI-POT voltage across terminals A&B, 1&2, or D&4.

The 1505 is an on delay timer, built specifically for continuous duty, for electric utility applications capable of high voltage DC switching. It is equipped with transient protection and housed in a metal enclosure for maximum noise immunity. The timing dial is calibrated in AC cycles at 60Hz, or seconds.

Continuous Duty Rated- On Delay

WIRING

OUTPUT A
A-B Voltage input
1-2 N.C. timed(1 positive)
3-4 N.O. timed(4 positive)

OUTPUT B
A-B Voltage input
2-1 N.C. timed(2 positive)
2-3 N.O. timed(2 positive)
D-4 N.C. timed(D positive)
D-C N.O. timed(D positive)

In DC applications indicated polarity provides optimum arc suppression

ORDERING CODE
1505 - B - 4 - B

BASIC MODEL NUMBER
1505

INPUT VOLTAGE
A 18V to 64V AC/DC
B 100V to 345V DC
90V to 260V AC

TIME RANGE
1 0.5-30 Sec
2 0.5-60 Sec
3 0.5-120 Sec
4 0.5-300 Sec

ORDERING DATA

ACCESSORIES
See accessory section for details

Locking attachment RP-217

Up to 345VDC Continuous Duty Timer

PHYSICAL

INPUT
TYPE:
Electromechanical relay

RATING:
3A @ 150 VDC maximum
10A @ 240 VAC 80% PF maximum

AVAILABLE TYPE: On delay

REPEAT ACCURACY: ± 1% of setting

RESET TIME: 50 msec minimum

TIME RANGE: 1.5 to 120 cycles in 4 ranges or
0.5 to 300 sec in 4 ranges

RANGE TOLERANCE: ≤ 10%

OUTPUT

TIMING

REPEAT ACCURACY: ± 1% of setting

RESET TIME: 50 msec minimum

TIME RANGE: 1.5 to 120 cycles in 4 ranges or
0.5 to 300 sec in 4 ranges

RANGE TOLERANCE: ≤ 10%

WIRING

Wiring Terminal Location

In DC applications indicated polarity provides optimum arc suppression

DIMENSIONS

Inches (millimeters)

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>(in)</th>
<th>(mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>3.875</td>
<td>98.4</td>
</tr>
<tr>
<td>Width</td>
<td>5.0</td>
<td>127</td>
</tr>
<tr>
<td>Max Width</td>
<td>2.02</td>
<td>51.8</td>
</tr>
<tr>
<td>Max Height</td>
<td>2.25</td>
<td>57.2</td>
</tr>
<tr>
<td>Max Depth</td>
<td>1.26</td>
<td>31.8</td>
</tr>
</tbody>
</table>

Continous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay

Continuous Duty Rated- On Delay
**INDUSTRIAL SOLID STATE TIMER**

**MODEL 2115 BLOCK**

**SPECIFICATIONS**

**INPUT**
- **VOLTAGE:** 120 VAC or 240 VAC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ±15% of nominal
- **POWER CONSUMPTION:** 1VA maximum
- **TRANSIENT PROTECTED**

**OUTPUT**
- **TYPE:** Solid State N.O.
- **RATING:** 1A @ 240VAC/DC max. (10A 1 cycle surge)
- **VOLTAGE DROP:** 2.5 volts typical at 1A

**MAINTAINED TYPE:** Interval
- **REPEAT ACCURACY:** ≤ 0.5%
- **RESET TIME:** ≤ 150 msec
- **TIME RANGE:** 0.1 to 10230 seconds in 3 ranges
- **TOLERANCE:** ± 5%
- **CONTROL:** Power applied to input initiates timing cycle

**ORDERING DATA**

**ORDERING CODE**
- 2115 - 2 - B - 5 - C

**BASIC MODEL NUMBER**
- 2115

**INPUT VOLTAGE**
- 1. 120VAC
- 2. 240VAC

**TIME RANGE** in seconds
- A. 0.1 to 102.3
- B. 1.0 to 1023
- C. 10 to 10230

**TIMING FUNCTION**
- 5. Maintained Interval

**OUTPUT**
- C. Solid state N.O. 1 Amp max.

**OPERATION**

**UL File No. E50957**

**CSA File No.LR 92815-3**

**WIRING**

**PHYSICAL**

**OPERATING TEMP:** -40° to +60°C (-40° to +140°F)
- **TIMING VARIATION VS. TEMP:** ± 5% maximum
- **MOUNTING:** Surface with #8 or #10 screw
- **TERMINATION:** 0.250 inch male quick connect terminals
- **HOUSING:** Plastic

**DIMENSIONS** (inches/millimeters)

**CSA File No. LR 92815-3**

**UL File No. E50957**

**The 2115 features** a simple three-wire installation. The compact encapsulated timer is switch programmable from 0.1 to 10230 seconds in three time ranges. Two power supply ranges with a reliable 1 Amp solid state output.
Repeat Cycle

The 1068 features repeat cycle operation in a compact, plug-in unit, ON and OFF times are independently adjustable in 16 programmable time ranges from 0.1 seconds to 500 hours. An auto-calibrating dial provides direct reading of time setting in every range. Operating voltage options are available from 12VDC to 240VAC. LED indicators for output on and output off complete the package. Now available with plug-in or screw terminal base.

ORDERING DATA

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>1068 - 1 - P - 9 - B - 1 - 1</th>
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<th>BASIC MODEL NUMBER</th>
<th>1068</th>
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<table>
<thead>
<tr>
<th>INPUT VOLTAGE</th>
<th>1 120-240 VAC</th>
<th>3 24 VAC/DC</th>
<th>5 12 VDC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TIME RANGE</th>
<th>P (Includes the following ranges)</th>
</tr>
</thead>
<tbody>
<tr>
<td>seconds</td>
<td>minutes</td>
</tr>
<tr>
<td>0.1 to 1.0</td>
<td>0.1 to 1.0</td>
</tr>
<tr>
<td>0.5 to 5.0</td>
<td>0.5 to 5.0</td>
</tr>
<tr>
<td>1.0 to 10</td>
<td>1.0 to 10</td>
</tr>
<tr>
<td>5.0 to 50</td>
<td>5.0 to 50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIMING FUNCTION</th>
<th>9 Repeat Cycle</th>
</tr>
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<table>
<thead>
<tr>
<th>OUTPUT</th>
<th>B Relay DPDT</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TERMINATION</th>
<th>1 8 pin plug-in base</th>
<th>2 Screw terminals</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DEGREE OF PROTECTION</th>
<th>1 IP50 Standard</th>
<th>2 IP65 Sealed unit(special order only)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>APPLICABLE ACCESSORIES</th>
<th>See accessory section for details</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 pin socket</td>
<td>RP-320</td>
</tr>
<tr>
<td>8 pin reversible socket</td>
<td>RP-321</td>
</tr>
<tr>
<td>8 pin cable socket</td>
<td>RP-323</td>
</tr>
<tr>
<td>Panel mount clip</td>
<td>RP-325</td>
</tr>
<tr>
<td>Stop rings</td>
<td>RP-327</td>
</tr>
</tbody>
</table>

| DIMENSIONS Inches (millimeters) |

<table>
<thead>
<tr>
<th>Screw terminal type</th>
<th>1.890 (48.0)</th>
<th>1.614 (41.0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin base type</td>
<td>1.890 (48.0)</td>
<td>2.306 (60.6)</td>
</tr>
</tbody>
</table>

SPECIFICATIONS

| VOLTAGE: 100-240 VAC, 24 VAC/DC, 12VDC |
| FREQUENCY: 50/60 Hz (AC models)       |
| TOLERANCE (VOLTAGE): - 15% to + 10% of nominal |
| POWER CONSUMPTION: 10VA (100-240 VAC)   |
| 2.5VA (24 VAC)                        |
| 2W (12 VDC & 24VDC)                   |
| TRANSIENT PROTECTION: MOV             |
| TYPE: Electromechanical relay         |
| MECHANICAL LIFE: 20,000,000 operations |
| ELECTRICAL LIFE: 100,000 operations minimum (at full rated load) |
| RATING: 5A @ 240VAC (resistive)       |
| TYPE: Repeat Cycle                    |
| REPEAT ACCURACY: ± 0.3% of setting     |
| TIMING RANGE: 0.1 secs to 500 hours in 16 ranges |
| RESET TIME: 300 msec minimum          |
| OPERATING TEMP: -10° to 50° C (14° to 122°F) |
| TIMING VARIATION VS. TEMP: ± 2% maximum |
| MOUNTING: Plug-In or Panel mount      |
| TERMINATION: 8 pin socket or screw terminals |
| HOUSING: Polycarbonate                |
| DEGREE OF PROTECTION: IP50(std), IP65(special) |

WIRING

---

800-233-9354 or 931-796-3050 Fax: 931-796-3956 www.issc-kanson.com
The 1073 is available with a choice of on delay only or 5 programmable functions. Auto-calibrating dial provides direct reading of time in each of 16 programmable time ranges from 0.1 seconds to 500 hours. The on delay only version has a DPDT timed output while the programmable unit has an SPDT timed plus SPDT instantaneous contacts. Operating voltage options are available from 12VDC to 240VAC. LED indicators for Power and Operate complete the package. Now available with plug-in or screw terminal base.

ORDERING DATA
ORDERING CODE 1073 - 1 - P - 2 - A - 1 - 1
BASIC MODEL NUMBER 1073
INPUT VOLTAGE
1 120-240 VAC
3 24 VAC/DC
5 12 VDC
TIME RANGE P (Includes the following ranges)
seconds minutes hours 10 hours
0.1 to 1.0 0.1 to 1.0 0.1 to 1.0 1.0 to 10
0.5 to 5.0 0.5 to 5.0 0.5 to 5.0 5.0 to 50
1.0 to 10 1.0 to 10 1.0 to 10 10 to 100
5.0 to 50 5.0 to 50 5.0 to 50 50 to 500
TIMING FUNCTION and OUTPUT
1 - B On delay with Relay DPDT
2 - A Programmable, 5 functions with 1 SPDT Instant relay and 1 SPDT Timed relay. Includes On Delay, Repeat Cycle Off Start, Repeat Cycle On Start, One Shot Maintained Interval and One Cycle Maintained Interval
TERMINATION
1 8 pin plug-in base
2 Screw terminals
DEGREE OF PROTECTION
1 IP50 Standard
2 IP65 Sealed unit(special order only)
APPLICABLE ACCESSORIES
See accessory section for details
8 pin socket RP-320
8 pin reversible socket RP-321
8 pin cable socket RP-323
Panel mount clip RP-325
Stop rings RP-327

WIRING
Output A
Output B

SPECIFICATIONS
VOLTAGE: 100-240 VAC, 24 VAC/DC, 12VDC
FREQUENCY: 50/60 Hz (AC models)
TOLERANCE (VOLTAGE): ± 15% to + 10% of nominal
POWER CONSUMPTION: 10VA (100-240 VAC)
2.5VA (24 VAC)
2W (12 VDC & 24VDC)
TRANSIENT PROTECTION: MOV

OUTPUT
TYPE: Electromechanical relay
MECHANICAL LIFE: 20,000,000 operations
ELECTRICAL LIFE: 100,000 operations minimum
(at full rated load)
RATING: 5A @ 240VAC (resistive)

TIMING
TYPE: On Delay Only or Programmable (programmable includes On Delay, Repeat Cycle Off Start, Repeat Cycle On Start, One Shot Maintained Interval and One Cycle Maintained Interval)
REPEAT ACCURACY: ± 0.3% of setting
TIMING RANGE: 0.1 secs to 500 hours in 16 ranges
RESET TIME: 100 msec minimum

PHYSICAL
OPERATING TEMP.: -10° to 50° C (14° to 122°F)
TIMING VARIATION VS. TEMP.: ± 2% maximum
MOUNTING: Plug-In or Panel mount
TERMINATION: 8 pin socket or screw terminals
HOUSING: Polycarbonate
DEGREE OF PROTECTION: IP50(std), IP65(special)

INPUT
TERMINATION:
8 pin socket COM
8 pin reversible socket COM
8 pin cable socket COM
Panel mount clip COM
Stop rings COM

DEMOENSIONS
Inches (millimeters)
Same dimensions as 1068 on previous page
**INDUSTRIAL SOLID STATE TIMER**

**MODEL 1081**
DIN PANEL MOUNT

---

**SPECIFICATIONS**

**INPUT**
- **VOLTAGE:** 100-120VAC, 200-240VAC, 24VAC, 24VDC, 12VDC
- **FREQUENCY:** 50/60 Hz (AC models)
- **TOLERANCE (VOLTAGE):** - 15% to +10% of nominal
- **POWER CONSUMPTION:** 5VA (AC models)
  2W (DC models)
- **TRANSIENT PROTECTION:** MOV

**OUTPUT**
- **TYPE:** Electromechanical relay
- **MECHANICAL LIFE:** 10,000,000 operations
- **ELECTRICAL LIFE:** 100,000 operations minimum (at full rated load)
- **RATING:** 3A @ 240VAC (resistive)

**TIMING**
- **TYPE:** True Off Delay
- **REPEAT ACCURACY:** ± 0.3% of setting
- **TIME RANGE:**
  - A (Includes the following ranges)
    - 0.04 sec - 1 sec
    - 0.2 sec - 5 sec
    - 0.4 sec - 10 sec
  - B (Includes the following ranges)
    - 0.04 min - 1 min
    - 0.2 min - 5 min
    - 0.4 min - 10 min
- **RESET TIME:** 100 msec at maximum time setting

**PHYSICAL**
- **OPERATING TEMP:** -10° to 50° C (14° to 122°F)
- **TIMING VARIATION VS. TEMP:** ± 2% maximum
- **MOUNTING:** Plug-In or Panel mount
- **TERMINATION:** 8 pin socket
- **HOUSING:** Polycarbonate
- **DEGREE OF PROTECTION:** IP50 (std), IP65 (special)

**WIRING**

The 1081 is a true off delay. Removal of input power actuates timing sequence eliminating the need for a separate control circuit. Two timing range options provide operation from 0.04 seconds to 10 minutes. Auto-calibrating dial provides direct reading of time setting in every range. A wide range of operating voltage options support operation from 12VDC to 240VAC, an LED indicates power is applied.

**ORDERING DATA**

**ORDERING CODE**

| 1081 | 2 | A | 2 | B | 1 |

**BASIC MODEL NUMBER**

1081

**INPUT VOLTAGE**

1. 120 VAC
2. 240 VAC
3. 24 VAC
4. 24 VDC
5. 12 VDC

**TIME RANGE**

A (Includes the following ranges)
- 0.04 sec - 1 sec
- 0.2 sec - 5 sec
- 0.4 sec - 10 sec

B (Includes the following ranges)
- 0.04 min - 1 min
- 0.2 min - 5 min
- 0.4 min - 10 min

**OUTPUT**

2. Off delay

**DEGREE OF PROTECTION**

1. IP50 Standard
2. IP65 Sealed unit (special order only)

**APPLICABLE ACCESSORIES**

- See accessory section for details
- 8 pin socket: RP-320
- 8 pin reversible socket: RP-321
- 8 pin cable socket: RP-323
- Panel mount clip: RP-325
- Stop rings: RP-327

---

**DIMENSIONS** Inches (millimeters)

**NOTE:** 1081 is not available with screw terminals, dimensions shown for 1090 only
The 1090 features 8 programmable timing functions. An auto-calibrating dial provides direct reading of time setting in each of 16 programmable time ranges from 0.1 seconds to 500 hours. Operating voltage options cover 12VDC to 240VAC. LED indicators for Power and Contact status.

ORDERING DATA

ORDERING CODE 1090 - 3 - P - 3 - B - 1 - 1

BASIC MODEL NUMBER 1090

INPUT VOLTAGE
1 120-240 VAC
3 24 VAC/DC
5 12 VDC

TIME RANGE
P (Includes the following ranges)
seconds minutes hours 10 hours
0.1 to 1.0 0.1 to 1.0 0.1 to 1.0 1.0 to 10
0.5 to 5.0 0.5 to 5.0 0.5 to 5.0 5.0 to 50
1.0 to 10 1.0 to 10 1.0 to 10 10 to 100
5.0 to 50 5.0 to 50 5.0 to 50 50 to 500

TIMING FUNCTION
3 Programmable, includes On Delay, Off Delay, Repeat Cycle Off Start, Repeat Cycle On Start, Pulse One-shot, One-shot On/Off, One-shot Off/On and One Cycle Maintained Interval

OUTPUT
B Relay DPDT

TERMINATION
1 11 pin plug-in base
2 Screw terminals

DEGREE OF PROTECTION
1 IP50 Standard
2 IP65 Sealed unit (special order only)

APPLICABLE ACCESSORIES
See accessory section for details
11 pin socket RP-322
11 pin cable socket RP-324
Panel mount clip RP-325
Stop rings RP-327

WIRING

Pin base type

Screw terminal type

Same dimensions as 1081 on previous page
The 1094 features a large, easy to read LCD display with programmable time ranges from 0.001 seconds to 9999 hours in 8 programmable timing functions. Three power supply options are available, a wide range of 100 to 240 VAC/DC, a 12 to 24VDC and a 24 VAC only version. A battery back-up maintains memory up to 7 years. Output is an SPDT relay or open collector transistor.

**ORDERING DATA**

**BASIC MODEL NUMBER**
1094

**INPUT VOLTAGE**
1 100 thru 240VAC/DC
2 12-24VDC
3 24VAC

**TIME RANGE**
P (user selectable ranges)
0.001 seconds to 9999 hours

**TIMING FUNCTION**
3 Programmatic
A On Delay (power control)
A2 On Delay (power control)
B On Delay (isolated control)
C Off Delay
D One shot,Interval
E Pulsed On Delay,Latched output
F Repeat Cycle
G On Delay,time totaling

**OUTPUT**
A Relay SPDT
C Open Collector Transistor (100mA,30VDC)

*Polarity indicated for DC models only

**APPLICABLE ACCESSORIES**
See accessory section for details
11 pin socket panel mount RP-303
11 pin socket DIN rail mount RP-322
11 pin cable socket RP-324
Panel mount clip RP-325 (one included with Model1094)
Protective cover RP-326

**SPECIFICATIONS**

**INPUT**
- **VOLTAGE:** 100 to 240VAC/DC or 12 to 24VDC or 24VAC
- **FREQUENCY:** 50/60 Hz (AC models)
- **POWER CONSUMPTION:** 2.5VA (AC models), 2.5W (DC models)
- **TRANSIENT PROTECTION:** MOV

**OUTPUT**
- **TYPE:** Electromechanical relay or transistor
- **MECHANICAL LIFE:** 10,000,000 operations (Relay only)
- **ELECTRICAL LIFE:**
  - Relay...100,000 operations minimum (at full rated load)
  - Transistor...10,000,000 operations minimum
- **RATING:**
  - Relay...5A @ 250VAC (resistive)
  - Transistor...100mA, 30VDC maximum

**ORDERING CODE**
1094 - 1 - P - 3 - A

**PHYSICAL**
- **WIRING**
- **DIMENSIONS**
  - **Inches (millimeters)**

**PROGRAMMING**
See page 36 for complete programming instructions

**ORDERING DATA**

**BASIC MODEL NUMBER**
1094

**INPUT VOLTAGE**
1 100 thru 240VAC/DC
2 12-24VDC
3 24VAC

**TIME RANGE**
P (user selectable ranges)
0.001 seconds to 9999 hours

**TIMING FUNCTION**
3 Programmatic
A On Delay (power control)
A2 On Delay (power control)
B On Delay (isolated control)
C Off Delay
D One shot,Interval
E Pulsed On Delay,Latched output
F Repeat Cycle
G On Delay,time totaling

**OUTPUT**
A Relay SPDT
C Open Collector Transistor (100mA,30VDC)

*Polarity indicated for DC models only

**APPLICABLE ACCESSORIES**
See accessory section for details
11 pin socket panel mount RP-303
11 pin socket DIN rail mount RP-322
11 pin cable socket RP-324
Panel mount clip RP-325 (one included with Model1094)
Protective cover RP-326
**Digital Dual Timer**

The 1096 features a large, easy to read LCD display with programmable time ranges from 0.001 seconds to 9999 hours in 6 on/off delay or repeat cycle timing functions. On time and off time are set independently. Three power supply options are available, a wide range of 100 to 240 VAC/DC, a 12 to 24VDC and a 24 VAC only version. A battery back-up maintains memory up to 7 years. Output is an SPDT relay or open collector transistor.

**ORDERING DATA**

**BASIC MODEL NUMBER**

| 1096 |

**INPUT VOLTAGE**

| 1 | 100 thru 240VAC/DC |
| 2 | 12-24VDC |
| 3 | 24VAC |

**TIME RANGE**

P (user selectable ranges)

0.01 seconds to 9,999 hours

T1 & T2 are independently programmable

**TIMING FUNCTION**

3 Programmable

- Pulse A: Pulsed On Delay/Off Delay One Cycle
- Pulse B: Repeat Cycle, Start Off
- Pulse C: Repeat Cycle, Start On

**OUTPUT**

- A: Relay SPDT
- C: Open Collector Transistor (100mA, 30VDC)

**APPLICABLE ACCESSORIES**

- 8 pin socket: RP-320
- 8 pin reversible socket: RP-321
- 8 pin cable socket: RP-323
- Panel mount clip: RP-325 (one included)
- Protective cover: RP-326

---

**SPECIFICATIONS**

**INPUT**

**VOLTAGE:** 100 to 240VAC or 12 to 24VDC or 24VAC

**FREQUENCY:** 50/60 Hz (AC models)

**POWER CONSUMPTION:** 2.5VA (AC models), 2.5W (DC models)

**TRANSIENT PROTECTION:** MOV

**TYPE:** Electromechanical relay or transistor

**MECHANICAL LIFE:** 10,000,000 operations (Relay only)

**ELECTRICAL LIFE:**

- Relay...100,000 operations minimum (at full rated load)
- Transistor...10,000,000 operations minimum

**RATING:**

- Relay...5A @ 250VAC (resistive)
- Transistor...100mA, 30VDC maximum

**OUTPUT**

**TYPE:** Multifunction

**REPEAT ACCURACY:** ± 0.005% of setting

**TIMING RANGE:** 0.01 secs to 9,999 hours

**RESET TIME:** 20 ms

**OPERATING TEMP:** -10° to 50° C (14° to 122°F)

**TIMING VARIATION VS. TEMPERATURE:** ±.005%

**MOUNTING:** Plug-In or Panel mount

**TERMINATION:** 8 pin socket

**HOUSING:** Polycarbonate

---

**WIRING**

**Output A**

- Control
- Reset
- External Switches

**Output C**

- Control
- Reset
- External Switches

*Polarity indicated for DC models only

Do not apply voltage to pins 3 and 4. Control and Reset accomplished by isolated contact closure.

---

**DIMENSIONS**

**INPUT**

<table>
<thead>
<tr>
<th>Inches</th>
<th>Millimeters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.880</td>
<td>48</td>
</tr>
<tr>
<td>2.189</td>
<td>56.6</td>
</tr>
<tr>
<td>2.695</td>
<td>68.5</td>
</tr>
<tr>
<td>5.70</td>
<td>145</td>
</tr>
<tr>
<td>1.752</td>
<td>44.5</td>
</tr>
</tbody>
</table>

---

**PROGRAMMING**

See page 36 for complete programming instructions.
**INDUSTRIAL SOLID STATE TIMER**

**MODEL 1105C**

**DIN PANEL MOUNT**

---

### Specifications

**Input**
- **Voltage:** 100 to 240VAC or 12-24VDC
- **Frequency:** 50/60 Hz (AC models)
- **Power Consumption:** 2.5VA (AC models), 2.5W (DC models)
- **Transient Protection:** MOV

**Counter Input**
- **Type:** Multifunction
- **Speed:** 30/sec or 5000/sec
- **Number of Inputs:** Two
- **Input Method:** Isolated contact or transistor

**Output**
- **Type:** Electromechanical relay or transistor
- **Mechanical Life:** 10,000,000 operations (Relay only)
- **Electrical Life:**
  - Relay...100,000 operations minimum (at full rated load)
  - Transistor...10,000,000 operations minimum
- **Rating:**
  - Relay...5A @ 250VAC (resistive)
  - Transistor...100mA, 30VDC maximum

**Ordering Data**

<table>
<thead>
<tr>
<th>Ordering Code</th>
<th>1105C - 1 - P - 3 - A</th>
</tr>
</thead>
</table>

**Basic Model Number**

1105C

**Input Voltage**

1. 100-240 VAC
2. 12-24VDC

**Time Range**

P (Includes the following modes)
- UP Counts Up
- DOWN Counts Down
- DIR Directional Count
- IND Independent Inputs
- PHASE Phased Inputs

**Timing Function**

3 Programmable
- Hold A Latched Output/Hold count
- Hold B Latched Output/Over count
- Hold C Latched (one count)/Over count
- Shot A One Shot/Continue count
- Shot B One Shot/Reset "On"
- Shot C One Shot/Reset "Off"
- Shot D One Shot/Hold count

**Output**

A Relay SPDT
C Open Collector Transistor (100mA,30VDC)

**Applicable Accessories**

See accessory section for details
- 11 pin socket RP-322
- 11 pin cable plug RP-324
- Panel mount clip RP-325 (one included)
- Protective cover RP-326

---

**The 1105C features**

Two 2 input and 5 input functions and a large, 6 digit LCD display. Two input count speeds (30/sec or 5000/sec) can be used to eliminate noise. There are 7 output functions with SPDT relay or optional transistor output. Two power supply options are available, a wide range of 100 to 240 VAC and a 12 to 24VDC only version. A battery back-up maintains memory up to 7 years.

---

**Ordering Code**

1105C - 1 - P - 3 - A

**Basic Model Number**

1105C

**Input Voltage**

1. 100-240 VAC
2. 12-24VDC

**Time Range**

P (Includes the following modes)
- UP Counts Up
- DOWN Counts Down
- DIR Directional Count
- IND Independent Inputs
- PHASE Phased Inputs

**Timing Function**

3 Programmable
- Hold A Latched Output/Hold count
- Hold B Latched Output/Over count
- Hold C Latched (one count)/Over count
- Shot A One Shot/Continue count
- Shot B One Shot/Reset "On"
- Shot C One Shot/Reset "Off"
- Shot D One Shot/Hold count

**Output**

A Relay SPDT
C Open Collector Transistor (100mA,30VDC)

**Applicable Accessories**

See accessory section for details
- 11 pin socket RP-322
- 11 pin cable plug RP-324
- Panel mount clip RP-325 (one included)
- Protective cover RP-326

---

**Programming**

See page 35 for complete programming instructions
# INPUT OPERATION

<table>
<thead>
<tr>
<th>INPUT FUNCTION</th>
<th>OPERATION DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>Count up to set value • Input 1 is count input • Input 2 inhibits count input</td>
</tr>
<tr>
<td>DOWN</td>
<td>Count down from set value • Input 1 is count input • Input 2 inhibits count input</td>
</tr>
<tr>
<td>DIR</td>
<td>Directional Count. Count Up or Count Down • Input 1 is count input</td>
</tr>
<tr>
<td>IND</td>
<td>Independent inputs • Input 1 is Count Up • Input 2 is Count Down</td>
</tr>
<tr>
<td>PHASE</td>
<td>Phasing of inputs determines count direction • If Input 1 is phased ahead of Input 2</td>
</tr>
</tbody>
</table>

## OUTPUT OPERATION

<table>
<thead>
<tr>
<th>Function</th>
<th>Count</th>
<th>Set Value</th>
<th>Action Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hold A</td>
<td></td>
<td></td>
<td>• Upon counting to set value, output latches On and count input is inhibited.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Output remains on until reset.</td>
</tr>
<tr>
<td>Hold B</td>
<td></td>
<td></td>
<td>• Upon counting to set value, output latches On but the count continues to increment.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Output remains on until reset.</td>
</tr>
<tr>
<td>Hold C</td>
<td></td>
<td></td>
<td>• Upon counting to set value, output turns On.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Output turns Off at next count following set value</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Count continues to increment.</td>
</tr>
<tr>
<td>Shot A</td>
<td></td>
<td></td>
<td>• Upon counting to set value, output turns On for approximately 1 second.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Count continues to increment.</td>
</tr>
<tr>
<td>Shot B</td>
<td></td>
<td></td>
<td>• Upon counting to set value, output turns On for approximately 1 second and the count is automatically reset.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Count may be continued from this point with no requirement for external reset.</td>
</tr>
<tr>
<td>Shot C</td>
<td></td>
<td></td>
<td>• Upon counting to set value, output turns On for approximately 1 second.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Count automatically resets at the same time the output turns Off.</td>
</tr>
<tr>
<td>Shot D</td>
<td></td>
<td></td>
<td>• Upon counting to set value, output turns On for approximately 1 second.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Count input is inhibited while output is On.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Count automatically resets at the same time the output turns Off.</td>
</tr>
</tbody>
</table>
**DIGITAL DIN PANEL MOUNT TIMER PROGRAMMING INSTRUCTIONS**

### 1094/1096 PROGRAMMING

1. **Setting or changing the operational mode**
   - When the UP or DOWN key at the first digit is pressed with the setlock switch pressed, the mode is changed over to the setting mode.
   - The operational mode in the setting mode is changed over sequentially in the left or right direction by pressing the up or down key at the first digit, respectively.

2. **Checking the operational mode**
   - When the UP or DOWN key at the second digit is pressed with the setlock switch pressed, the operational mode can be checked.
   - The display returns to the normal condition after indicating the operational mode for about two seconds. (Write the display indicates the normal mode for about two seconds, the other indicators continue to operate normally.)

3. **Setting the lock**
   - When the UP or DOWN key at the fourth digit is pressed with the setlock switch pressed, all keys on the unit are locked.
   - The timer does not accept any of UP, DOWN and SET keys.
   - To release the lock setting, press the UP or DOWN key at the fourth digit again with the setlock switch pressed.
   - Operational mode, adding and subtracting and minimum input signal range cannot be set at T1 and T2, respectively.

4. **Changing over the T1/T2 setting display**
   - The T1/T2 setting display is changed over by pressing the SET/Lock switch. (This operation gives no effect on the other operations. The set time and elapsed time (residual time) at T1 are linked with those at T2.)

   **Changing the set time**
   1. It is possible to change the set time with the up and down keys even during time delay with the timer. However, be aware of the following points:
   2) If the set time is changed to less than the elapsed time with the time delay set in the addition direction, time delay will continue until the elapsed time reaches full scale, returns to zero, and then reaches the new set time. If the set time is changed to a time above the elapsed time, the time delay will continue until the elapsed time reaches the new set time.

   2) If the time delay is set in the subtraction direction, time delay will continue until “0” regardless of the new set time.

   2. When the set times at T1 and T2 are set to 0, the output becomes ON only while the signal input is carried out. However, while the reset input is carried out, the output becomes OFF.

### DIP switches:

- **1, 2 and 3** Control the counter’s 7 function options.
- **4** Sets minimum input signal length (reset, signal and stop).
- **5** Sets maximum count speed (30Hz or 5kHz).
- **6, 7 and 8** Control the 5 input options.

* Set dip switches before installation!

Set value is set using the toggle keys on the front of the timer.

Each key is for the corresponding digit in the display.

### 1105C PROGRAMMING

Set value is set using the toggle keys on the front of the timer.

Each key is for the corresponding digit in the display.
DIGITAL DIN PANEL MOUNT TIMER
PROGRAMMING INSTRUCTIONS

**1094 PROGRAMMING**

Timing Function and Timing Ranges:

Dip switches:
1, 2 and 3 Control the timers 8 function options.
4 Sets minimum input signal length (reset, signal and stop).
5 Sets direction of time delay (addition or subtraction).
6, 7 and 8 Control the time ranges (0.001 s to 9.999 s thru 0.1 h to 999.9 h).

* Set dip switches before installation!

Setting the Time:

Time is set using the toggle keys on the front of the timer. Each key is for the corresponding digit in the display.

**1096 PROGRAMMING**

Timing Ranges:

Dip switches:
1, 2 and 3 Control the time ranges for T1 (0.001 s to 9.999 s thru 0.1 h to 999.9 h).
4 Sets minimum input signal length (reset, signal and stop).
5 Sets direction of time delay (addition or subtraction).
6, 7 and 8 Control the time ranges for T2 (0.001 s to 9.999 s thru 0.1 h to 999.9 h).

* Set dip switches before installation!

Timing function representations:
Kanson Electronics, Inc.

INDUSTRIAL SOLID STATE
MOTION DETECTOR

MODEL 1214
BASE MOUNT

SPECIFICATIONS

INPUT

VOLTAGE: 120VAC, 24VAC/DC
FREQUENCY: 50/60 Hz
TOLERANCE (VOLTAGE): ± 10% of nominal
POWER CONSUMPTION: 10 VA maximum
TRANSIENT PROTECTION: Isolation transformer
(120VAC only)

OUTPUT

TYPE: Electromechanical relay
RATING: 10A - 240VAC maximum

FUNCTION

TYPE: Motion detector
TIMING RAMP: 100kΩ/sec
TIME RANGE: 0.06 to 100 secs in 10 ranges
RANGE TOLERANCE: ≤ 10% at max, ≤ 0% at min
CONTROL: Isolated contact closure
(maximum resistance - 100Ω)

CONTROL TERMINALS: E-F
VOLTAGE PRESENT AT CONTROL TERMINALS:
24VDC minimum, 40VDC maximum
CYCLE TIME: Min. time control circuit closed 2msec
Min. time control circuit open 50msec
Max. control circuit pulses/sec 18

PHYSICAL

OPERATING TEMP: 0° to 50° C (32° to 120°F)
TIMING VARIATION VS. TEMP: ± 5% maximum
MOUNTING: Base mount
TERMINATION: Terminal blocks on face of timer
HOUSING: Metal

WIRING

OUTPUT B, B1, B2
A-B Voltage input (constant)
C-D Remote adjust
(jumper if not used)
E-F Control (resets timing function)
1-2 N.O. timed (except B2, N.C.)
3-4 N.C. timed (except B1, N.O.)

Caution: Never apply voltage to C-D-E-F

OPERATION

Closing the control circuit energizes the output. Opening and reclosing the control circuit before the set time interval completes keeps the output energized, and it remains energized as long as the monitored motion continues to provide at least two pulses per set time interval. If the monitored motion stops, the output de-energizes after the set time interval completes, even if motion stops in such a way that the control circuit remains closed.

ORDERING DATA

ORDERING CODE
1214 - 1 - J - B

BASIC MODEL NUMBER
1214

INPUT VOLTAGE
1 120VAC
2 24VAC / DC

TIME RANGE (Secs)
A 0.06-0.10 F 0.06-5.0
B 0.06-25 G 0.06-10.0
C 0.06-50 H 0.06-25.0
D 0.06-1.0 J 0.06-50.0
E 0.06-2.5 K 0.06-100

OUTPUT
B Relay 1 N.O., 1 N.C.
B1 Relay 2 N.O.
B2 Relay 2 N.C.

APPLICABLE ACCESSORIES
See accessory section for details
Potentiometers RP-201 thru RP-210
Reference dial RP-216
Locking attachment RP-217

800-233-9354 or 931-796-3050 Fax: 931-796-3956 www.issc-kanson.com 31
The model 1217 consists of an underspeed control unit and a DC proximity sensor. The unit output relay energizes for a set time interval when it receives one control circuit pulse from the proximity sensor. A pulse consists of one opening and closing of the control circuit. Each pulse resets the time interval to zero, and the output remains energized as long as the monitored motion provides at least two pulses per set time interval. The DC proximity sensor actuates the control circuit.

The time interval is set on the unit's internal timing potentiometer. The unit output relay immediately energizes and remains energized for the set time interval when a metal object leaves the sensing field.

1) The output relay de-energizes after the set time interval completes if a metal object remains out of the sensing field.

2) The output relay de-energizes after the set time interval completes if the metal object enters and remains in the sensing field.

3) The output relay remains energized and the time interval resets to zero and begins timing again if a metal object enters and leaves the sensing field before the set time interval completes.

4) The control unit automatically completes one time interval if a metal object is not present in the sensing field when power is initially applied.

When used as a PLC watchdog the PLC provides the input pulses, application information is included on page 32.
**Kanson Electronics, Inc.**

**INDUSTRIAL SOLID STATE**

**MOTION DETECTOR**

**MODEL 1217**

**BASE MOUNT**

---

### Wiring Diagrams

**Motion Detector**

- **A-B**: Voltage input (constant)
- **C**: Not used
- **D**: DC(-) to terminal - on prox sensor
- **E**: Control to Terminal A on prox sensor
- **F**: DC(+) to terminal + on prox sensor
- **1-2**: N.O. timed (except B2, N.C.)
- **3-4**: N.C. timed (except B1, N.O.)

**PLC watchdog timer**

- **A-B**: Voltage input (constant)
- **C**: Not used
- **D**: Common on PLC
- **E**: +24V pulsed output from PLC
- **F**: Not used
- **1-2**: N.O. timed (except B2, N.C.)
- **3-4**: N.C. timed (except B1, N.O.)

---

### Ordering Data

**Ordering Code - Complete Unit**

- **Basic Model Number**: 1217
- **Input Voltage**: 120VAC, 24VAC/DC
- **Time Range**:
  - D: 0.06-1.0
  - E: 0.06-2.5
  - F: 0.06-5.0
  - G: 0.06-10.0
- **Output**:
  - B: Relay 1 N.O., 1 N.C.
  - B1: Relay 2 N.O.
  - B2: Relay 2 N.C.
- **Location of Sensing Area**:
  - 1: End
  - 2: Right
  - 3: Left

**Ordering Code - Control Only**

- **Basic Model Number**: 1217C
- **Input Voltage**: 120VAC, 24VAC/DC
- **Time Range**:
  - D: 0.06-1.0
  - E: 0.06-2.5
  - F: 0.06-5.0
  - G: 0.06-10.0
- **Output**:
  - B: Relay 1 N.O., 1 N.C.
  - B1: Relay 2 N.O.
  - B2: Relay 2 N.C.
- **Location of Sensing Area**:
  - 1: End
  - 2: Right
  - 3: Left

**Ordering Code - Prox Switch Only**

- **Basic Model Number**: 1217P
- **Location of Sensing Area**:
  - 1: End
  - 2: Right
  - 3: Left

---

**Dimensions**

- **Dimensions in inches (millimeters)**

---

**Installation Recommendation**: The standard unit is insensitive to most induced voltage transients on the control leads (E-F). Although not mandatory, shielding the leads is recommended. Reasonable care should be taken to eliminate control lead runs in conduit or trays with high voltage lines (1000V or greater).

---

800-233-9354 or 931-796-3050
Fax: 931-796-3956
www.issc-kanson.com
Model 1248A
Limit Style
Industrial Solid State Motion Detector

Self-contained Prox sensor and motion detector

The 1248A is a self-contained combination proximity sensor and speed switch (motion detector) in easy to install limit style unit. Two-wire circuit is wired in same manner as a limit switch. A plug-in receptacle saves wiring time. There are three user selectable speed ranges that cover 5 through 7500 pulses per minute and an adjustable start time delay of 0 to 20 seconds. An LED indicates that the output is energized and a target adjustment mode aids setup.

Ordering Data

Ordering Code 1248A – 1A4P

Operation

- Output de-energized when monitored motion is below speed set point
- Output energizes when monitored motion reaches or exceeds speed set point
- Energized output will not de-energize until monitored motion drops below speed set point
- Output automatically resets-energizes when monitored speed again reaches speed set point

Specifications

VOLTAGE: 20 to 250 VAC/DC
FREQUENCY: 50/60 Hz or DC
LEAKAGE: ≤ 2mA
TRANSIENT PROTECTION: MOV

Max. Load Current: 500 mA (continuous)
Voltage: ≤ 9 Volts (with resistive load max. load current)
Max. Inrush Current: 7 A
Min. Load Current: 5 mA

Sensing Distance: 12.7mm (0.5 in)
Target Size: 40mm x 40mm mild steel

Timing

Speed Ranges: 3 (user selectable)
A = 5 - 75 ppm*
B = 50 - 750 ppm
C = 500 - 7500 ppm
Max. Speed at which sensor can detect target: 10,000 ppm
Hysteresis: 10% differential between pickup & dropout speeds.
Response Time: All speed ranges 3 msec / 3 msec (target present / target absent)
Delay in Readiness: 100 msec (with start up delay at zero)
Start Up Time Delay: 0 - 20 seconds. (user adjustable)

*ppm = speed (RPM) X number of targets

Physical

Temperature Range: -25˚C to +70˚C
Housing Material: Fire-retardant ABS/polycarbonate blend
Environmental Rating: NEMA 1,3,4,6,12,13,IP67
Termination: 3-Pin mini-style connector

Accessories

2 m cable with connector RP-503
5 m cable with connector RP-503-5

Wiring

Dimensions

N.O. 2 3 LOAD

L1 1 L2

Increase Speed Speed set point Decrease

Output OFF Output ON

Published by Kanson Electronics, Inc. 3416 Kissimmee Street, Decatur, Tennessee 37322
Tel: 800-233-9354 or 931-796-3050 Fax: 931-796-3956 www.issc-kanson.com
ADJUSTMENTS

Initial Start Time Delay (0-20 Sec., Adjustable)
The 1248A is supplied with an initial start time delay which ene-
gizes the output for the time specified when power is applied to
the unit. This feature provides time at start-up for the moni-
tored equipment to reach a speed that will maintain an energized out-
put. The output de-energizes if the speed of the monitored equip-
ment fails to reach the set point by the end of this delay. Removing
and reapplying power resets the initial time delay.

SPECIAL CONSIDERATIONS FOR
PLC APPLICATIONS

When using the model 1248A as a direct input to a PLC,
the minimum load current specification of 5mA must be
taken into consideration. Most of today's PLC's have a very
high input impedance which does not allow enough current
for the 1248A to operate properly.
The solution to this problem is to parallel a load (a resistor
or indicator lamp) with the PLC input.

APPLICATION EXAMPLE

Initial Start Time Delay

DIP switch range selection

The DIP switch selects one of the three ranges or test mode. The switches can be changed without removing power from the device.

When the test mode is selected, the 1248A emulates a standard prox switch. The output comes on when the target is present. If power is applied with the switches set for test mode the 1248A enters a factory test mode. Turn off power and set switches to off to exit.

Typical PLC Application Example:


NOTE: This circuit requires the start time delay to be adjust-
ed for no less than 1/2 sec.
**INDUSTRIAL SOLID STATE MOTION DETECTOR**

**Underspeed Detection**

AC Control Circuit is compatible with standard mechanical switches, solid state proximity sensors, and 120 VAC pulses.

**ORDERING DATA**

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>1260 - 1 - K - C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC MODEL NUMBER</td>
<td>1260</td>
</tr>
<tr>
<td>INPUT VOLTAGE</td>
<td>120VAC</td>
</tr>
<tr>
<td>TIME RANGE (Secs)</td>
<td>0.06-2.5 K 0.5-100</td>
</tr>
<tr>
<td>NOTE:</td>
<td>Specify W and desired fixed time. Factory will set time within 5%</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>B Relay 1 N.O., 1 N.C. C Solid State 1 N.O., 1.5 amps AC</td>
</tr>
</tbody>
</table>

**APPLICABLE ACCESSORIES**

See accessory section for details

| Potentiometers | RP-201 thru RP-210 |
| Reference dial | RP-216 |
| Locking attachment | RP-217 |

**SPECIFICATIONS**

| VOLTAGE: | 120VAC |
| FREQUENCY: | 50/60 Hz |
| TOLERANCE (VOLTAGE): | ± 10% of nominal |
| POWER CONSUMPTION: | 10 VA maximum |
| TRANSIENT PROTECTION: | Isolation transformer |
| TYPE: | Electromechanical relay or solid state |
| RATING: | 1.5A @ 120 VAC (solid state) 10A @ 240VAC maximum (electromechanical) |

**ORDERING CODE**

| MODEL 1260 BASE MOUNT |

**FUNCTION**

**PHYSICAL**

**VOLTAGE:** 120VAC  
**FREQUENCY:** 50/60 Hz  
**TOLERANCE (VOLTAGE):** ± 10% of nominal  
**POWER CONSUMPTION:** 10 VA maximum  
**TRANSIENT PROTECTION:** Isolation transformer  
**TYPE:** Electromechanical relay or solid state  
**RATING:** 1.5A @ 120 VAC (solid state) 10A @ 240VAC maximum (electromechanical)  
**NOTE:** Specify W and desired fixed time. Factory will set time within 5%  
**CONTROL TERMINALS:** P1-P2-L2  
**VOLTAGE PRESENT AT CONTROL TERMINALS:**  
P1-P2: Same as input voltage  
L2-P2: 120VAC pulse  
**CYCLE TIME:** Min. time control circuit closed 8 msec  
Min. time control circuit open 16 msec  
Max. control circuit pulses/sec 40  
**OPERATING TEMP:** -32° to 71°C (-25° to 160°F)  
**TIMING VARIATION VS. TEMP:** ± 3% maximum  
**MOUNTING:** Base mount  
**TERMINATION:** Terminal block on face of timer  
**HOUSING:** Metal  

**WIRING**

**OUTPUT B**

| L1-L2 Voltage input (constant) |
| P1-P2 Control |
| L2-P2 120VAC Pulse |
| Output as shown: N.O. timed N.C. timed |

**OUTPUT C**

| L1-L2 Voltage input (constant) |
| P1-P2 Control |
| L2-P2 120VAC Pulse |
| R1-R2 Remote adjust (jumper if not used) |
| S1-S2 N.O. solid state, timed |

**Caution:** Never apply voltage to P1-L1 internally jumpered to P1)  
**Caution:** Never apply voltage to P1-R1-R2 (L1 internally jumpered to P1)  

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Inches (millimeters)</th>
<th>Depth = 5.0(127)</th>
</tr>
</thead>
</table>

**MODEL 1260 BASE MOUNT**

**INDUSTRIAL SOLID STATE MOTION DETECTOR**

Kanson Electronics, Inc.
Adjusting Set Time Interval

A timing potentiometer sets the time interval. It is necessary to calculate the period of time between pulses to determine the correct time setting.

1) Determine minimum operating speed. This is the speed at which the output energizes. Any greater speed also maintains an energized output. Any slower speed de-energizes the output.

2) Determine pulse/sec ratio provided by minimum operating speed.

   example: 2 pulses/sec

3) Determine time interval between pulses.

   example: 2 pulses/sec = 1 pulse/0.5 sec

4) Adjust timing potentiometer to a setting slightly greater than 0.5 sec. Minimum operating speed (1 pulse/0.5 sec) will provide 2 pulses in a time interval slightly greater than 0.5 sec and maintain an energized output. Any speed less than the minimum operating speed will not provide two pulses per set time interval, and the unit's output will de-energize.

5) Select a time range, when ordering a 1262, in which the set time interval for minimum operating speed falls midrange. This provides better time setting resolution.

   example: Set time interval = 0.55 sec
            Select time range "D" - 0.06-1.0 sec)

**SPECIFICATIONS**

**INPUT**

| VOLTAGE: 120VAC |
| FREQUENCY: 50/60 Hz |
| TOLERANCE (VOLTAGE): ± 10% of nominal |
| POWER CONSUMPTION: 10 VA maximum |
| TRANSIENT PROTECTION: Isolation transformer |

**OUTPUT**

| TYPE: Electromechanical relay |
| RATING: 10A - 1/6 HP at 120VAC, 1/3 HP at 240VAC |

| TYPE: Motion detector |
| REPEAT ACCURACY: ± 1% of setting |
| INDICATION: LED indicates unit timing and output energized |
| TIMING RAMP: 0.02 sec minimum time - 1MΩ/sec |
| TIME RANGE: 0.06 to 1000 secs in 13 ranges |
| RESPONSE TIME: Set time interval |
| HYSTEROSIS: ~ 5% between pick-up and drop-out speeds |
| RANGE TOLERANCE: ≤ 10% at max, ≤ 0% at min |
| CONTROL TERMINALS: A-B-C-D-E-F |

**VOLTAGE PRESENT AT CONTROL TERMINALS:**

- A - C: Same as input voltage
- B - C: 120VAC pulse
- D - E: 12VDC pulse
- D - E: 12VDC pulse

**FUNCTION**

| CYCLE TIME: |
| Time Range | At Control | Dir Control |
| A-C | Minimum time control circuit closed | 16 msec | 0.5 msec |
| D-H | Minimum time control circuit closed | 16 msec | 5 msec |
| J-N | Minimum time control circuit closed | 16 msec | 5 msec |

**OPERATION**

The output is de-energized when the monitored motion provides less than two pulses per set time interval. The output energizes when the monitored motion reaches or exceeds two pulses per set time interval. Once energized, the output will not de-energize until the monitored motion drops to less than two pulses per set time interval. The output automatically resets and the output energizes when the monitored speed again matches two pulses per set time interval.

**Underspeed or Overspeed Detection**

Output Energizes only when running speed is reached.

**AC Control Circuit** is compatible with standard mechanical switches, solid state proximity sensors, and 120VAC pulse.

**DC Control Circuit** is compatible with solid state source or sink proximity sensors.

**MSHA Investigation No. IA-137. The 1262 used in conjunction with the ISSC 1221 proximity sensor (see page 50) is approved by the Mine Safety and Health Administration.**

CSA File No. LR92815

**PHYSICAL**

| OPERATING TEMP: 0° to 50° C (32° to 122° F) |
| TIMING VARIATION VS. TEMP: ± 5% maximum |
| MOUNTING: Base mount |
| TERMINATION: Terminal block on face of timer |
| HOUSING: Metal |

1262 data continued on page 37
**MODEL 1262**

**BASE MOUNT**

**INDUSTRIAL SOLID STATE MOTION DETECTOR**

**ORDERING DATA**

- **ORDERING CODE**: 1262 - 1 - L - D - B - OP3(10)
- **BASIC MODEL NUMBER**: 1262
- **INPUT VOLTAGE**: 120VAC
- **DETECTION MODE**: L Underspeed
- **TIME RANGE (Secs)**:
  - A: 0.02-0.10
  - B: 0.02-0.25
  - C: 0.02-0.50
  - D: 0.06-1.0
  - E: 0.06-2.5

**NOTE**: Specify W and desired fixed time. Factory will set time within 5%

- **OUTPUT**
  - B: Relay 1 N.O., 1 N.C.
  - B1: Relay 2 N.O.
  - B2: Relay 2 N.C.

**OPTION**

- OP3(t) Initial start time delay. Specify in parentheses time selected from below:
  - 1 sec
  - 5 secs
  - 10 secs
  - 25 secs

**SPECIAL MODEL** for PLC WATCHDOG applications

- **ORDER NUMBER**: 1262-PC
  - 0.06-2.5 second timeout
  - 2 second start-up delay
  - Relay output 1 N.O., 1 N.C.

**APPLICABLE ACCESSORIES**

- See accessory section for details
- Locking attachment: RP-217

**DIMENSIONS**

- **Inches (millimeters)**

**WIRING**

- **A-B**: Voltage input (constant)
- **A-C**: AC Control — mechanical contact or prox sensor
- **B-C**: AC Control — 120VAC Pulse
- **D-E**: DC Control — source or sink* prox sensor
- **D- (DC-)**: common for prox sensor
- **E- (A)**: input for prox sensor
- **F- (+ 12VDC)**: supplied to prox sensor

**NOTE**:

- When using sink prox sensor, install 1200 ohm pull-up resistor (supplied with unit) at E-F.
- 1-2 N.O. (except B2, N.C.)
- 3-4 N.C. (except B1, N.O.)

*When using sink prox sensor, install 1200 ohm pull-up resistor (supplied with unit) at E-F.

**AC CONTROL**

- L1
- L2
- C

**DC CONTROL**

- D
- E
- D+
- E+

**OUTPUT**

- 1
- 2
- 3
- 4

**120 VAC 50/60 Hz INPUT (CONSTANT)**

**120 VAC CONTROL**

- (CONNECT CONTROL CONTACT OR N.O. 120 VAC SENSOR AT L1 & C)

**NOTE**: This input is not to be used in a MSHA approved installation

**DC CONTROL**

- A

**CONNECT CONTROL CONTACT AT E & F, CONNECT 12VDC SENSOR AT D, E & F**

**NOTE**: To use ISSC DC PROXIMITY SWITCH 1221 (N.O.) , A 1200 ohm pull-up resistor (supplied with unit) must be installed at terminals E & F. (See DWG. 02693.)
**INDUSTRIAL SOLID STATE RESISTANCE DETECTOR**

**INPUT**
- **VOLTAGE:** 120VAC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ± 15% of nominal
- **POWER CONSUMPTION:** 10 VA maximum
- **TRANSIENT PROTECTION:** Isolation transformer

**TYPE:** Electromechanical relay

**RATING:** 10 A @ 240VAC maximum

<table>
<thead>
<tr>
<th>Control Terminals</th>
<th>Type A Resistive Sensitive 3.0kΩ</th>
<th>Type A Resistive Sensitive 30kΩ</th>
<th>Type B Resistive Sensitive 110Ω</th>
<th>Type C Voltage Sensitive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. open circuit voltage</td>
<td>8VDC</td>
<td>40VDC</td>
<td>2VDC</td>
<td>N/A</td>
</tr>
<tr>
<td>Max. short circuit current</td>
<td>10mA</td>
<td>10mA</td>
<td>2.0mA</td>
<td>N/A</td>
</tr>
<tr>
<td>Max. control resistance to energize unit</td>
<td>3.0kΩ</td>
<td>30kΩ</td>
<td>110Ω</td>
<td>N/A</td>
</tr>
<tr>
<td>Min. control resistance to de-energize unit</td>
<td>6.0kΩ</td>
<td>45kΩ</td>
<td>160Ω</td>
<td>N/A</td>
</tr>
<tr>
<td>Max. control voltage</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>20VDC</td>
</tr>
<tr>
<td>Min. control voltage</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>1.5VDC±10%</td>
</tr>
<tr>
<td>Control point which may be grounded</td>
<td>E or F</td>
<td>E or F</td>
<td>F</td>
<td>F</td>
</tr>
</tbody>
</table>

Note: N/A indicates not applicable

**OPERATING TEMP:** 0° to 50°C (32° to 120°F)

**MOUNTING:** Base mount

**TERMINATION:** Terminal block on face of timer

**HOUSING:** Metal

**WIRING**

**TYPE A**
- **A-B** Voltage input (constant)
- **C-F** Control 30K (energizes output, remove jumper)
- **E-F** Control 3K (energizes output, jumper C&D)
- **1-2** N.O. (except B2, N.C.)
- **3-4** N.C. (except B1, N.O.)

*Caution:* Never apply voltage to C-D-E-F Wiring Terminal Location

**TYPE B**
- **A-B** Voltage input (constant)
- **C-D** Not used
- **E-F** Control (energizes output)
- **1-2** N.O. (except B2, N.C.)
- **3-4** N.C. (except B1, N.O.)

**TYPE C**
- **A-B** Voltage input (constant)
- **C-D** Not used
- **E-F** Control E(+)-F(-) (energizes output)
- **1-2** N.O. timed (except B2, N.C.)
- **3-4** N.C. (except B1, N.O.)

**DIMENSIONS**
- Exterior dimensions same as 1214 page 30

**ORDERING DATA**

**ORDERING CODE**
- **1213 - 1 - A - B - OP1**

**BASIC MODEL NUMBER**
- **1213**
- **1213 UL**

**INPUT VOLTAGE**
- **1 120VAC**
- **2 240VAC**

**TYPE**
- **A** Resistive sensitive relay with dual control points, 3K ohm or 30K ohm maximum.
- **B** Low resistive sensitive relay with single control point, 110 ohm maximum.
- **C** Voltage sensitive control point, 20V maximum, 3V minimum.

**OUTPUT**
- **B** Relay 1 N.O., 1 N.C., contacts electrically isolated
- **B1** Relay 2 N.O., contacts electrically isolated
- **B2** Relay 2 N.C., contacts electrically isolated

**OPTIONS** (if desired)
- **OP1** Output indication light
- **OP2** Sensitivity adjustment which allows resistance level to be set anywhere between 10 and 110 ohms.

*Not available on UL units
**RESISTIVE SENSITIVE SWITCH**

The Resistive Sensitive Switch is a completely solid state industrial control device whose output changes state when the resistance impressed on its input terminals matches a predetermined value. This is programmed by installing a reference resistance across input programming pins. The unit is also programmable to cause the output to turn on when input resistance is greater than the reference resistance, or to turn on when the input resistance is less than the reference resistance. Designed for service in rugged industrial control environments, it is a plug-in device which can be applied in any control scheme where a control action is required, based upon a change in electrical resistance; such as RTD, photocells, liquid level contact, tool to workpiece contact, etc. Input terminal open circuit voltage and short circuit current are limited to low levels for safety reasons.

**ORDERING DATA**

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>1230 - 1 - D - C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BASIC MODEL NUMBER</strong></td>
<td>1230</td>
</tr>
<tr>
<td><strong>INPUT VOLTAGE</strong></td>
<td>120VAC</td>
</tr>
<tr>
<td><strong>TYPE</strong></td>
<td>D Resistive Sensitive Switch (input sensitivity 1.0kΩ to 1.0MΩ)</td>
</tr>
<tr>
<td><strong>OUTPUT</strong></td>
<td>C Solid State(AC) 1 Amp, 120VAC</td>
</tr>
</tbody>
</table>

**ACCESSORIES** See accessory section for details
- 8 pin socket RP-302
- 8 pin socket(DIN rail mount) RP-320

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>INPUT</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOLTAGE: 90 to 140VAC</td>
<td></td>
</tr>
<tr>
<td>FREQUENCY: 50/60 Hz</td>
<td></td>
</tr>
<tr>
<td>POWER CONSUMPTION: 20 mA</td>
<td></td>
</tr>
<tr>
<td>TRANSIENT PROTECTION: Transformer</td>
<td></td>
</tr>
<tr>
<td>TYPE: N.O. Triac (optically isolated, 1500 Vrms)</td>
<td></td>
</tr>
<tr>
<td>RATING: 1.0A rms max continuous 15A inrush (16 msec @ 60Hz)</td>
<td></td>
</tr>
<tr>
<td>MAX SWITCHING RATE: 30/second</td>
<td></td>
</tr>
<tr>
<td>SENSITIVITY: 1.0kΩ to 1.0MΩ user programmable</td>
<td></td>
</tr>
<tr>
<td>OPEN CIRCUIT VOLTAGE: &lt; 7 volts maximum</td>
<td></td>
</tr>
<tr>
<td>SHORT CIRCUIT CURRENT: &lt; 5 mA maximum</td>
<td></td>
</tr>
<tr>
<td>HYSTERESIS: Approximately 30%</td>
<td></td>
</tr>
</tbody>
</table>

**PHYSICAL**

| OPERATING TEMP: | -25° to +70°C (-13° to 160°F) |
| MOUNTING: | Plug-in |
| TERMINATION: | 8 pin socket |
| HOUSING: | Plastic |

**WIRING**

Programming Connections

Output energizes when input resistance is lower than reference resistance set point

Output energizes when input resistance is higher than reference resistance set point

**DIMENSIONS** Inches (millimeters)

![Dimensions Diagram]
INDUSTRIAL SOLID STATE RESISTANCE DETECTOR

MODEL 1232
BASE MOUNT

SPECIFICATIONS

**INPUT**

- **VOLTAGE:** 120VAC, 24VAC/DC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ± 10% of nominal
- **POWER CONSUMPTION:** 10 VA maximum
- **TRANSIENT PROTECTION:** MOV

**OUTPUT**

- **TYPE:** Electromechanical relay
- **RATING:** 10A @ 240VAC maximum

**RESISTANCE INPUT**

- **SENSITIVITY:** 1.0k to 1.0M in 5 ranges
- **OPEN CIRCUIT VOLTAGE:** 13 volts maximum
- **SHORT CIRCUIT CURRENT:** 5 mA maximum
- **HYSTERESIS:** Approximately 20%

**TIMING**

- **TYPE:** On delay - Off delay (independently adjustable)
- **REPEAT ACCURACY:** ≤ 0.5%
- **TIME RANGE:** 0.05 to 1.0 seconds
- **CONTROL:** Resistance applied to terminals C & D

**PHYSICAL**

- **OPERATING TEMP:** 0° to 70° C (32° to 120°F)
- **TIMING VARIATION VS. TEMP:** ± 5% maximum
- **MOUNTING:** Base mount
- **TERMINATION:** Terminal block on face of timer
- **HOUSING:** Metal

**WIRING**

- **A-B** Voltage input (constant)
- **C-D** Control (energizes output)
- **1-2** N.O.
- **2-3** N.C.
- **4-5** N.O.
- **5-6** N.C.

**Caution:** Never apply voltage to terminals C & D

**DIMENSIONS**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ø 170 (4.3)</td>
<td></td>
</tr>
<tr>
<td>1.44 (36.9)</td>
<td></td>
</tr>
<tr>
<td>0.94 (23.9)</td>
<td></td>
</tr>
<tr>
<td>0.16 (4.1)</td>
<td></td>
</tr>
<tr>
<td>2.75 (69.9)</td>
<td></td>
</tr>
<tr>
<td>3.06 (77.7)</td>
<td></td>
</tr>
<tr>
<td>2.875 (72.9)</td>
<td></td>
</tr>
<tr>
<td>0.19 (4.8)</td>
<td></td>
</tr>
<tr>
<td>DEPTH: 4.25 (108.0)</td>
<td></td>
</tr>
</tbody>
</table>

**ORDERING DATA**

**ORDERING CODE**

1232 - 1 - A - B

**BASIC MODEL NUMBER**

1232

**INPUT VOLTAGE**

1. 120VAC
2. 24VAC/DC

**SENSING RANGE**

A. 1.0k - 3.0k
B. 2.0k - 25k
C. 20k - 250k
D. 200k - 700k
E. 500k - 1.0M

**OUTPUT**

B. Relay DPDT

The 1232 is useful where initial contact may be poor or the item to be detected may bounce against the sensing probes. Output operates when sensing probes come in contact with a material which provides a resistance value lower than the set resistance and after set on-delay. Output releases when the resistance between the sensing probes is greater than the set resistance and after set off-delay.
**RESISTANCE RANGE DETECTOR**

The 1234 is a ‘window’ type detector and can be used where fail-safe operation is required. Output is operated when sensing probes come in contact with a material which provides a resistance value between the upper and lower set resistances. Output is released when the resistance between the sensing probes is less than the lower set resistance or greater than the upper set resistance. LED indicators show low/good/high conditions. In a typical application the unit could detect a probe shorted to ground(low) or a broken wire to the probe(high).

**OPERATION**

<table>
<thead>
<tr>
<th>RESISTANCE RANGE DETECTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
</tr>
<tr>
<td>OUTPUT</td>
</tr>
<tr>
<td>OFF</td>
</tr>
</tbody>
</table>

**ORDERING DATA**

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>1234 -</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC MODEL NUMBER</td>
<td>1234</td>
</tr>
<tr>
<td>INPUT VOLTAGE</td>
<td>1 120VAC</td>
</tr>
<tr>
<td>2 24VAC/DC</td>
<td></td>
</tr>
<tr>
<td>SENSING RANGE</td>
<td>A 0Ω - 50k</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>B Relay SPDT</td>
</tr>
<tr>
<td>OPTIONS (If desired)</td>
<td>OP1 Factory installed 47kΩ upper trip resistor and 3.0kΩ lower trip resistor.</td>
</tr>
</tbody>
</table>

**SPECIFICATIONS**

<table>
<thead>
<tr>
<th>INPUT</th>
<th>VOLTAGE: 120VAC, 24VAC/DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQUENCY: 50/60 Hz</td>
<td></td>
</tr>
<tr>
<td>TOLERANCE (VOLTAGE): ± 10% of nominal</td>
<td></td>
</tr>
<tr>
<td>POWER CONSUMPTION: 10 VA maximum</td>
<td></td>
</tr>
<tr>
<td>TRANSIENT PROTECTION: MOV</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUTPUT</th>
<th>TYPE: Electromechanical relay</th>
</tr>
</thead>
<tbody>
<tr>
<td>RATING: 10A @ 240VAC maximum</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RESISTANCE INPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SENSE RANGE: 0Ω to &gt;50k</td>
</tr>
<tr>
<td>UPPER SET POINT: 100Ω to 50k</td>
</tr>
<tr>
<td>LOWER SET POINT: 85Ω to 42k must be &lt;85% of upper point</td>
</tr>
<tr>
<td>OPEN CIRCUIT VOLTAGE: 13 VDC maximum</td>
</tr>
<tr>
<td>SHORT CIRCUIT CURRENT: 2.0 mA maximum</td>
</tr>
<tr>
<td>HYSTERESIS: Approximately 5%</td>
</tr>
</tbody>
</table>

**PHYSICAL**

| OPERATING TEMP: 0° to 70° C (32° to 120°F) |
| MOUNTING: Base mount |
| TERMINATION: Terminal blocks on face of timer |
| HOUSING: Metal |

**WIRING**

<table>
<thead>
<tr>
<th>Wiring Terminal Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-B Voltage input (constant)</td>
</tr>
<tr>
<td>C-D Sensing Input (energizes output)</td>
</tr>
<tr>
<td>E-F Lower trip set resistance</td>
</tr>
<tr>
<td>G-F Upper trip set resistance</td>
</tr>
<tr>
<td>1-2 N.O.</td>
</tr>
<tr>
<td>2-3 N.C.</td>
</tr>
</tbody>
</table>

**Caution:** Never apply voltage to terminals C-D-E-F-G

**DIMENSIONS** (Inches (millimeters))

<table>
<thead>
<tr>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.44 (36.6)</td>
</tr>
<tr>
<td>.16 (4.1)</td>
</tr>
<tr>
<td>.75 (19.1)</td>
</tr>
<tr>
<td>.36 (9.1)</td>
</tr>
<tr>
<td>.4 (10.1)</td>
</tr>
<tr>
<td>.19 (4.8)</td>
</tr>
</tbody>
</table>
**INDUSTRIAL SOLID STATE LIQUID LEVEL DETECTOR**

**MODEL LLD-100**  
**MODEL LLP-100**

---

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Circuit Type</td>
<td>Normally Open Solid State Output</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>105-130 VAC 50/60 Hz</td>
</tr>
<tr>
<td>Max. Load Current</td>
<td>12 Amps (continuous)</td>
</tr>
<tr>
<td>Max. Inrush Current</td>
<td>50 Amps (one cycle)</td>
</tr>
<tr>
<td>Min. Load Current</td>
<td>100 mA</td>
</tr>
<tr>
<td>Probe Input</td>
<td>Open Circuit Voltage 12VDC</td>
</tr>
<tr>
<td></td>
<td>Peak Current &lt; 1mA max.</td>
</tr>
<tr>
<td>Temperature Range</td>
<td>-25° to 70°C (-10° to 155°F)</td>
</tr>
<tr>
<td>Termination</td>
<td>3-Pin Terminal strip</td>
</tr>
</tbody>
</table>

### Wiring

- **Terminal 1**: L1 (120 VAC)  
- **Terminal 2**: LOAD  
- **Terminal 3**: L2 (COMMON)

**Aluminum Mounting Plate and Liquid to Be Detected Should Be at Same Electrical Potential (Typically Earth Ground)**

### Dimensions

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>LLD-100 Detector</td>
<td></td>
</tr>
<tr>
<td>LLD-100 Probe</td>
<td></td>
</tr>
</tbody>
</table>

### Operation

The LLD-100 is a resistance detector optimized to detect any conductive fluid. A typical application is to signal a high water level and activate a pump to lower the water to a safe level. Output is “off” with no conducting path from probe to aluminum mounting plate. Output is “on” when resistance between probe and aluminum mounting plate is ≤ 1MΩ.

### Ordering Data

**Ordering Codes:**

- **LLD - 100** Detector module
- **LLP - 100** Probe assembly

---

800-233-9354 or 931-796-3050  
Fax: 931-796-3956  
www.issc-kanson.com
MODEL 1221
LIMIT STYLE

INDUSTRIAL SOLID STATE
PROXIMITY SWITCH

DC Limit Style

FEATURES

The 1221 is a low cost limit style DC, three wire, proximity switch. When used with the 1262 provides a MSHA approved motion sensing system.

ORDERING DATA

ORDERING CODE 1221 - 1 - A - 1 - A

The 1221 is currently only available as an end sensing, NPN sinking, normally open output, 10-26 VDC unit.

SPECIFICATIONS

VOLTAGE: 10 to 26 VDC, 10% ripple allowed
SUPPLY CURRENT: ≤ 20 mA
TRANSIENT PROTECTION: MOV

MAX. LOAD CURRENT: 100 mA (continuous)

SENSING DISTANCE: 14.29 mm (0.56 in)
REPEATABILITY: ±5 mm (0.02 in)
HYSTERESIS: 3.18 mm (0.12 in)
TARGET SIZE: 40mm x 40mm x 1mm mild steel
SWITCHING FREQUENCY: 1.0 kHz maximum
RANGE DERATING:
- Chrome-nickel 0.9
- Brass 0.5
- Aluminum 0.45
- Copper 0.4

OPERATING TEMP: -20°C to +65°C (-4°F to +149°F)
HOUSING MATERIAL: Fire-retardant ABS/polycarbonate blend
ENVIRONMENTAL RATING: NEMA 1,3,4,6,12,13,IP67
TERMINATION: Internal terminal block

WIRING

WIRING TO INTERNAL TERMINAL STRIP

DIMENSIONS inches (millimeters)

ORDERING CODE 1221 - 1 - A - 1 - A

The 1221 is currently only available as an end sensing, NPN sinking, normally open output, 10-26 VDC unit.
## INDUSTRIAL SOLID STATE PROXIMITY SWITCH

### MODEL 1250

#### LIMIT STYLE

## FEATURES

The 1250 is a low cost limit style proximity switch using the same proven detection circuitry as our 1248A. Featuring a 20-250 VAC/DC universal input voltage and a simple two-wire connection. It is available with end, left or right sensing. Other options are a normally open or normally closed output and either an internal terminal block or a factory installed connector.

### SPECIFICATIONS

<table>
<thead>
<tr>
<th>INPUT</th>
<th>VOLTAGE: 20 to 250 VAC/DC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>FREQUENCY: 50/60 Hz or DC</td>
</tr>
<tr>
<td></td>
<td>LEAKAGE: ≤ 2 mA</td>
</tr>
<tr>
<td></td>
<td>TRANSIENT PROTECTION: MOV</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUTPUT</th>
<th>MAX. LOAD CURRENT: 500 mA (continuous)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>VOLTAGE: ≤ 9 Volts (with resistive load max. load current)</td>
</tr>
<tr>
<td></td>
<td>MAX. INRUSH CURRENT: 7 A</td>
</tr>
<tr>
<td></td>
<td>MIN. LOAD CURRENT: 5 mA</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SENSING</th>
<th>SENSING DISTANCE: 12.7mm (0.5 in)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TARGET SIZE: 40mm x 40mm mild steel</td>
</tr>
<tr>
<td></td>
<td>SWITCHING FREQUENCY: 166 Hz maximum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VOLTAGE: 20 to 250 VAC/DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREQUENCY: 50/60 Hz or DC</td>
</tr>
<tr>
<td>LEAKAGE: ≤ 2 mA</td>
</tr>
<tr>
<td>TRANSIENT PROTECTION: MOV</td>
</tr>
</tbody>
</table>

### ORDERING DATA

**ORDERING CODE**

1250 - 1 - A - 1

**BASIC MODEL NUMBER**

1250

**LOCATION OF SENSING AREA**

1 End
2 Right
3 Left

**OUTPUT CONFIGURATION**

A Normally open
B Normally closed

**TERMINATION**

1 Terminal block inside cover
2 Connector on end of housing

### DIMENSIONS

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Inches (millimeters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 END</td>
<td>Sensing Area Locations</td>
</tr>
<tr>
<td>2 RIGHT</td>
<td>1 END Sensing Area Locations</td>
</tr>
<tr>
<td>3 LEFT</td>
<td>1 END Sensing Area Locations</td>
</tr>
</tbody>
</table>

### WIRING

- **WIRING FOR INTERNAL TERMINAL STRIP**
  - L1
  - LOAD
  - L2

- **WIRING WITH EXTERNAL CONNECTOR**
  - L1
  - 2
  - LOAD
  - 3
  - L2

### PHYSICAL

- TEMPERATURE RANGE: -25°C to +70°C
- HOUSING MATERIAL: Fire-retardant ABS/polycarbonate blend
- ENVIRONMENTAL RATING: NEMA 1,3,4,6,12,13,IP67
- TERMINATION: Internal terminal block or external 3-Pin mini-style connector

### ORDERING DATA

**DIMENSIONS**

- 1.57 (40.3)
- 1.77 (45.0)
- 2.36 (60.2)
- 4.41 (112.8)
- Ø 0.217 (5.5)
- 1.18 (29.7)
- 1.57 (40.3)
## FEATURES

The 1050 is a totally solid state cascadable stepper. Each unit consists of an input/output (I/O) board which houses twelve output terminals and a plug-in function board which controls output function. As many as five I/O boards can be cascaded to increase the number of outputs.

## ORDERING DATA

<table>
<thead>
<tr>
<th>ORDERING CODE</th>
<th>1050 - 1 - 1 - A - C</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC MODEL NUMBER</td>
<td>1050</td>
</tr>
<tr>
<td>INPUT VOLTAGE</td>
<td>115VAC/115VAC</td>
</tr>
<tr>
<td>2 115VAC/12-24VDC (user supplied)</td>
<td></td>
</tr>
<tr>
<td>FUNCTION</td>
<td>1 Time base with cycle stop</td>
</tr>
<tr>
<td>3 External pulse (time ranges not applicable; omit next to characters)</td>
<td></td>
</tr>
<tr>
<td>TIME RANGE (Secs)</td>
<td>ON Time</td>
</tr>
<tr>
<td>A</td>
<td>.022-11</td>
</tr>
<tr>
<td>B</td>
<td>.022-27</td>
</tr>
<tr>
<td>C</td>
<td>.022-55</td>
</tr>
<tr>
<td>OFF Time</td>
<td>D</td>
</tr>
<tr>
<td>E</td>
<td>.22-270</td>
</tr>
<tr>
<td>F</td>
<td>.22-550</td>
</tr>
</tbody>
</table>

**NOTE:** On and OFF time ranges must have same minimum time.

### Parts List

- 115VAC I/O board only: 1050RP1
- 115VAC input/12-24VDC output board: 1050RP2
- *Time base function board with cycle stop: 1050RP3
- *External pulse function board: 1050RP5

* Select ON and OFF time ranges when ordering 1050RP3 (Example: 1050RP3-A-C)

## SPECIFICATIONS

### INPUT

- **VOLTAGE:** 115VAC
- **FREQUENCY:** 50/60 Hz
- **TOLERANCE (VOLTAGE):** ± 10% of nominal
- **POWER CONSUMPTION:** 1.5 VA maximum
- **TRANSIENT PROTECTION:** Isolation transformer, MOV on input and all outputs.

### OUTPUT

- **TYPE:** AC-triac, DC-transistor
- **PROTECTION:** AC-2A replaceable fuse
- **RATING:** 10A @ 240VAC maximum
- **AC - 115VAC**
  - Inrush 3.5A
  - Carry .5A
- **DC - 12-24VDC** (supplied externally)
  - Inrush 2.0A
  - Carry 1.0A

### FUNCTION

- Stepper with time base or external pulse
- **TYPE:** 1 to 12 selectable step, with cascading capability
- **REPEAT ACCURACY:** ± 1% of setting (time base only)
- **RESET TIME:** Resets to first step when input power removed for 1 second.

### TIMING VARIATION VS. VOLTAGE

- < .1% (time base only)

### INDICATION

- 12 LED’s indicate output status (ON or OFF);
- 1 LED indicates current flow through outputs and load.

### TIME RANGES

- .022 to 550 seconds in six ranges
- **TOLERANCE:** < 30% at maximum, < 0% at minimum

### CONTROL

- Isolated contact closure or AC proximity sensor

### TIMING VARIATION VS. TEMPERATURE

- 5% maximum (time base only)

### OPERATING TEMP.

- -20° to 70° C (-4° to 158°F)

### MOUNTING

- Mounting hole in each corner of board:
- compatible with standard 8 x 10 inch enclosure mounting studs.

### HOUSING

- Metal

### DIMENSIONS

**PHYSICAL**

- Overall Height (not including standoff): 1.9 (49.2)
- Recommended Standoff: 0.7 (17.6)
- Overall Dimensions: 5.3 (135.7)

**DIMENSIONS**

- 9.75 (248.5)
- 9.25 (235.5)
- 8.75 (222.5)
- 8.25 (210.5)
- 6.25 (158.75)
**FUNCTION DIAGRAMS**

### #1 Time Base Function Board

Input Power

<table>
<thead>
<tr>
<th>On</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Output

<table>
<thead>
<tr>
<th>On</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Cycle Stop (St)

<table>
<thead>
<tr>
<th>Open</th>
<th>Closed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

ON/OFF timing function controls output cycle. Two timing potentiometers located on function board control ON and OFF time settings. ON time setting determines length of time each output is energized. OFF time setting determines length of time each output is de-energized.

- Closing the cycle stop switch interrupts the output cycle.
- Closing the cycle stop switch while output cycle is de-energized immediately disables output cycle. When the cycle stop switch is opened, any remaining OFF time is deleted and next output energizes immediately.
- Closing the cycle stop switch while output cycle is energized allows ON time for that output to complete, then output cycle is disabled. Opening cycle stop immediately energizes next output.
- Removing and reapplying input power resets the stepper to the first step of the output cycle.

### #3 External Pulse Function Board

Input Power

<table>
<thead>
<tr>
<th>On</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Output

<table>
<thead>
<tr>
<th>On</th>
<th>Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

Control Switch (St)

<table>
<thead>
<tr>
<th>Open</th>
<th>Closed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

External control switch regulates output cycle.

- Closing control switch energizes output.
- Opening control switch de-energizes output.

**SINGLE BOARD CYCLING**

**Continuous Cycling**

- Connect terminals one (1) and six (6) on terminal block one (TB1) to program the stepper for continuous cycling.
- Omit connection if output cycle is to stop after completing one cycle. Input power must then be removed and reapplied to initiate another output cycle.

**Programming for Number of Outputs**

### TB1

<table>
<thead>
<tr>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>7</td>
<td>8</td>
<td>9</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

- Output cycle can be limited to fewer than twelve outputs if stepper is programmed for continuous cycling. Install a jumper between socket of desired number of outputs and middle socket as shown in diagram.

**CASCADED BOARD CYCLING**

### Wiring Configuration

- Arrange boards as shown to minimize the length of the wire runs. It is recommended that input, output and control wiring (TB2) be routed away from logic wiring (TB1) to avoid possibility of noise in the output function.
- Only the first I/O board in a cascaded system requires a function board. Program each I/O board in the cascaded system for 12 outputs except the last board, which may be programmed for any number of outputs.

**Logic Wiring**

- Return wire from last board in the cascaded system to terminal one (1) of #1 board for continuous cycling.
- Terminate wiring at the last board to stop cascaded cycle after on cycle. Input power must then be removed and reapplied.

**WIRING**

### INPUT & OUTPUT WIRING FOR STEPPER WITH AC OUTPUT (REVISION LEVEL D OR HIGHER)

Stepper is wired to supply 120VAC to the output. No additional wiring is necessary.

*S1 operates cycle stop

### INPUT & OUTPUT WIRING FOR STEPPER WITH DC OUTPUT

2-24VDC must be supplied from external source to C and load.

*S1 provides external control signal
ACCESSORIES

OUTPUT DEVICES

RP-101 24 VDC, DPDT Relay, 8-Pin, Plug-in

RP-103 1.0A N.O. Solid State, 8-Pin, Plug-in
RP-104 1.5A N.O. Solid State, 8-Pin, Plug-in
RP-105 1.5A N.C. Solid State, 8-Pin, Plug-in
RP-106 1.5A 1 N.O., 1 N.C. Solid State, 8-Pin, Plug-in

RP-103, RP-104, RP-105 and RP-106

POTENTIOMETERS AND RELATED HARDWARE

RP-201 to RP-210

RP-216 Reference dial for remote pots

RP-217 Locking attachment for RP-201 to RP-210

800-233-9354 or 931-796-3050  Fax: 931-796-3956  www.issc-kanson.com
**SOCKETS**

**RP-302** 8 pin socket, panel mount only

**RP-303** 11 pin socket, panel mount only

**RP-304** 11 pin flat terminal socket, panel mount only

**RP-302** 8 pin socket, DIN rail or panel mount, with hold-down clips

**RP-321** 8 pin reversed socket, permits wiring from rear of unit when panel mounting

**RP-322** 11 pin socket, DIN rail or panel mount, with hold-down clips

**RP-324** 11 pin cable socket

**RP-323** 8 pin cable socket (not shown)

---

Kanson Electronics, Inc.

ACCESSORIES

800-233-9354 or 931-796-3050  Fax: 931-796-3956

www.issc-kanson.com
**ACCESSORIES**

**MISCELLANEOUS HARDWARE**

**RP-306** Hold down clip

**RP-305** Hold down clip

**RP-311** Timing indication light

**RP-326** Protective cover, Clear, 1094, 1095, 1096 or 1105C only

**RP-325** Panel mounting clamp for DIN timers

**RP-327** Stop/locking rings, fits over dial on DIN timers. For units with numbers that end in -1 or -2 only.

**RP-330** Adapter plate permits replacement of ATC 305, 310, 325 & 335 and Eagle Signal CA, CE, CD, CT, CX, HG, HQ, HP & HZ products with the ISSC Model 1068, 1073, 1081, 1090, 1094, 1095, 1096, & 1105C.

No modification of the existing panel cut-out is required. Simply remove the existing timer or counter and install the ISSC RP-330 in its place using 6-32 hardware. The appropriate ISSC timer or counter may now be installed into the “new” panel opening by utilizing an ISSC model RP-325 panel mount clamp (one RP-325 is included with digital models but must be ordered separately for analog models)

**RP-503** 2m cable with connector for 1248A or 1250
**RP-503-5** same as above 5m long
Don’t See what You are Looking for?

Let Kanson Electronics Inc. customize a timer, sensor, or any type of electronic PC board or assembly for you. Most customized timing solutions have little or no additional costs.

We specialize in custom solutions and “out of the box” thinking. Almost all of the timers and sensors in this catalog can be customized to fit your needs; from longer delays, to additional features. We also have many “off the shelf” products that are not in this catalog.

Give one of our technical engineers a call. Let us help you find, or build, what you are looking for.

1-800-233-9354
Kanson Electronics, Inc.
245 Forrest Avenue
Hohenwald, TN 38462

931-796-3050

Fax 931-796-3956

web http://www.issc-kanson.com/

For other control products refer to our
Proximity Sensors Catalog
or our
Modor Technical Products Catalog

Call an ISSC Engineer for answers to your application questions.

Toll free
800-233-9354

Kanson Electronics, Inc.
also offers a broad range of contract manufacturing services. Please visit our web site or call for details.

Here at ISSC/Kanson Electronics Inc. this still means something to all of us:

We manufacture our timers and sensors in middle Tennessee. We drill the metal, we inject the plastic, we powder coat the steel, and we design/build the printed circuit boards; then we assemble them right here in the USA.

We build our products as if we were the customer. Powder coated steel enclosures, Zinc plated base plates, Stainless Steel screws are just a few of the items that make our products outlast and outperform the competition. We do not cut corners or make excuses; our products will outperform any on the market today and we stand behind that pledge.

Beyond using the best materials available we go the extra mile by testing, cycling, and QC’ing 100% of everything we manufacture. We know our products work before you ever receive them; making your life easier is why we do it.

If you’re in the market for timers or sensors, you might as well buy the best. Our quality and attention to detail in the manufacturing process will help make your end product outlast and outperform your competition. This is one of the reasons we believe that “Timing is Everything”.

Your success is our business.

If you didn’t find what you were looking for in this catalog, give us a call. We build many specialized timers and sensors, and can customize most of the products in this catalog to fit your needs.
Isn’t it nice when things just fit together?
Welcome to Modor Technical Products

www.modorplastics.com 1-931-796-0039
<table>
<thead>
<tr>
<th>Contents</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Welcome Message</td>
<td>2</td>
</tr>
<tr>
<td>Contents</td>
<td>3</td>
</tr>
<tr>
<td>CA Housing Line</td>
<td>4</td>
</tr>
<tr>
<td>CA Header Line</td>
<td>5-6</td>
</tr>
<tr>
<td>CB Housing Line</td>
<td>7</td>
</tr>
<tr>
<td>CB Header Line</td>
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<td>CD Header Line</td>
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<td>CF Housing Line</td>
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<td>CH Housing Line</td>
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<td>JR Housing and Header Line</td>
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<td>Potting Shell Housing and Cover Line</td>
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<td>Headers Misc</td>
<td>19</td>
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<tr>
<td>CNC Perforations</td>
<td>20</td>
</tr>
<tr>
<td>Silk Screening / Pad Printing</td>
<td>21</td>
</tr>
<tr>
<td>Polycarbonate Specifications</td>
<td>22</td>
</tr>
<tr>
<td>Phenolic Specifications</td>
<td>23</td>
</tr>
</tbody>
</table>

www.modorplastics.com 1-931-796-0039
Our **CA Line** of enclosures...

Made from Lexan 141R polycarbonate (PC)  
(see page 22)  
Extremely durable.  
Very high impact resistance.

**Housing Material:** Polycarbonate  
*Flammability:* V0-V2  
*Melting temperature (Tm)*: 267 °C  
*Surface resistivity:* $10^{15}$ Ω/sq  
*Volume resistivity* ($\rho$): $10^{12}$–$10^{14}$ Ω·m

**CA Specifications:**

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**CAS Specifications:**

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<td>1.56</td>
</tr>
</tbody>
</table>

Customized Machining Available
Customized Printing Available

**Ordering:**
CA (followed by color)  
CAS (followed by color)

example:  
CA red CAS red  
CA blue CAS blue  
CA clear CAS clear  
CA green CAS green  
CA yellow CAS yellow  
CA orange CAS orange  
CA beige CAS beige  
CA black CAS black  
CA white CAS white

(custom colors available)
Our CA Line of header assemblies include:
CA-8, CA-8DTL, CA-8DTS, CA-8P, CA-9, CA-11, CA-11DTL, CA-11DTS, CA-20
CAMF-8, CAMF-11
Material “Phenolic” (see page 23)
Extremely Hard
Good Thermal Stability
Chemical Imperviousness

8,9,11,20 PIN Bases

"Octal style" headers
In-Line style headers
Blade Type headers

Double thru pin connectors
Metal flanged headers also available
Machining and printing available

**Ordering:**
Use part number listed above
Our CA Line of header assemblies include:
CA-8, CA-8DTL, CA-8DTS, CA-8P, CA-9,
CA-11, CA-11DTL, CA-11DTS, CA-20
CAMF-8, CAMF-11

Header Material: Phenolic (PF), (see page 23)

- Extremely Hard
- Good Thermal Stability
- Chemical Imperviousness

8,9,11,20 PIN Bases

- "Octal style" headers
- In-Line style headers
- Blade Type headers

Double thru pin connectors
Metal flanged headers also available
Machining and printing available

**Ordering:**
Use part number listed above
Our CB Line of enclosures...

Made from Lexan 141R polycarbonate (PC)
(see page 22)
Extremely durable.
Very high impact resistance.

Housing Material: Polycarbonate
Flammability: V0-V2
Melting temperature (Tm) 267 °C
Surface resistivity: $10^{15}$ Ω/sq
Volume resistivity ($\rho$): $10^{12}–10^{14}$ Ω·m

CB Specifications:

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<thead>
<tr>
<th>Width (mm)</th>
<th>Length (mm)</th>
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<th>Height (in)</th>
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<td>1.975</td>
<td>1.975</td>
<td>1.575</td>
</tr>
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</table>

Customized Machining Available
Customized Printing Available

Ordering:
CB (followed by color)
CBLP (followed by color)

example: CB red  CBLP red
CB blue     CBLP blue
CB clear    CBLP clear
CB green    CBLP green
CB yellow   CBLP yellow
CB orange   CBLP orange
CB beige    CBLP beige
CB black    CBLP black
CB white    CBLP white

(custom colors available)
Our CB Line of header assemblies include:
**CB-8, CB-8DTL, CB-8DTS, CBMF-8, CB-11, CB-11DTL, CB-11DTS, CBMF-11, CB-12, CB-20**

Header Material: Phenolic (PF), (see page 23)
- Extremely Hard
- Good Thermal Stability
- Chemical Imperviousness

8,11,12,20 PIN Bases

"Octal style" headers
- In-Line style headers
- Blade Type headers

Double thru pin connectors
- Metal flanged headers also available
- Machining and printing available

**Ordering:**
- CB-(followed by pin count)
- CB-(followed by pin count) DTS
- CB-(followed by pin count) DTL
- CBMF-8
- CBMF-11
Our **CC Line** of enclosures include:

**CC, CCPC, CCL, CCLPC**

Made from Lexan 141R polycarbonate (PC)

*see page 22*

Extremely durable.
Very high impact resistance.

Housing Material: Polycarbonate

Flammability: V0-V2

*Melting temperature* (Tm) 267 °C

*Surface resistivity*: $10^{15} \Omega/$sq

*Volume resistivity* (ρ): $10^{12}–10^{14} \Omega \cdot m$

**CC/CCPC Specifications:**

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<thead>
<tr>
<th>Width (mm)</th>
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<th>Height (mm)</th>
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**CCL/CCLPC Specifications:**

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<th>Width (mm)</th>
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<td>1.75</td>
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<td>3.27</td>
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</table>

Customized Machining Available
Customized Printing Available

**Ordering:**

CC (followed by color)

CCPC (followed by color)

CCL (followed by color)

CCLPC (followed by color)

example: CC red  CCPC red  CCL red
CC blue  CCPC blue  CCL blue
CC clear  CCPC clear  CCL clear
CC green  CCPC green  CCL green
CC yellow  CCPC yellow  CCL yellow
CC orange  CCPC orange  CCL orange
CC beige  CCPC beige  CCL beige
CC black  CCPC black  CCL black
CC white  CCPC white  CCL white

(custom colors available)

www.modorplastics.com  1-931-796-0039
Our CC Line of header assemblies include:
CC-8, CC-8DTL, CC-8DTS, CC-8MF, CC-9, CC-11, CC-11DTL, CC-11DTS, CC-11MF, CCD-12, CCD-12 w/clip, CCD-12 DTL, CCD-12 DTL w/clip, CCD-12DTS, CCD-12 DTS w/clip, CC-20, CCQ-8, CCQ-11

Header Material: Phenolic (PF), (see page 23)
Extremely Hard
Good Thermal Stability
Chemical Imperviousness

8,9,11,12,20 PIN Bases

"Octal style" headers
In-Line style headers
Blade Type headers

Double thru pin connectors
Metal flanged headers also available
Machining and printing available

Ordering:
Use part number listed above

(Clip also sold separately)
Our CC Line of header assemblies include:
CC-8, CC-8DTL, CC-8DTS, CC-8MF, CC-9, CC-11, CC-11DTL, CC-11DTS, CC-11MF,
CCD-12, CCD-12 w/clip, CCD-12 DTL, CCD-12 DTL w/clip, CCD-12DTS,
CCD-12 DTS w/clip, CC-20, CCQ-8, CCQ-11
Header Material: Phenolic (PF), (see page 23)
Extremely Hard
Good Thermal Stability
Chemical Imperviousness

CC-Clip is made of Lexan 141R polycarbonate (PC)

8,9,11,12,20 PIN Bases

"Octal style" headers
In-Line style headers
Blade Type headers

Double thru pin connectors
Metal flanged headers also available
Machining and printing available

Ordering:
Use part number listed above
Our **CD Line** of header assemblies include:
- CD-8, CD-8DTL, CD-8DTS, CD-11, CD-11DTL, CD-11DTS

**Header Material:** Phenolic (PF), (see page 23)
- Extremely Hard
- Good Thermal Stability
- Chemical Imperviousness

8,9,11,12,20 PIN Bases

"Octal style" headers
- In-Line style headers
- Blade Type headers

Double thru pin connectors
- Metal flanged headers also available
- Machining and printing available

**Ordering:**
- CD-(followed by pin count)
- CD-(followed by pin count) DTS
- CD-(followed by pin count) DTL

(also see the JT line of headers)
Our **CF Line** of enclosures:

Made from Lexan 141R polycarbonate (PC)
(see page 22)
Extremely durable.
Very high impact resistance.

Housing Material: Polycarbonate
*Flammability: V0-V2*
*Melting temperature (Tm) 267 °C*
*Surface resistivity: $10^{15} \, \Omega/sq$*
*Volume resistivity ($\rho$): $10^{12}$–$10^{14} \, \Omega \cdot \text{m}$*

**CF Specifications:**

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<th>Height (in)</th>
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<tbody>
<tr>
<td>2.75</td>
<td>3.5</td>
<td>2.62</td>
</tr>
</tbody>
</table>

Customized Machining Available
Customized Printing Available

**Ordering:**
CF (followed by color)

example: CF red
CF blue
CF clear
CF green
CF yellow
CF orange
CF beige
CF black
CF white

(custom colors available)
Our **CH Line** of enclosures:

Made from Lexan 141R polycarbonate (PC)  
*(see page 22)*  
Extremely durable.  
Very high impact resistance.

**Housing Material:** Polycarbonate  
**Flammability:** V0-V2  
**Melting temperature (Tm)** 267 °C  
**Surface resistivity:** \(10^{15} \ \Omega\text{/sq}\)  
**Volume resistivity (\(\rho\)):** \(10^{12}-10^{14} \ \Omega\cdot\text{m}\)

**Header Material:** Phenolic (PF), *(see page 23)*  

**CH Specifications:**

<table>
<thead>
<tr>
<th>Width (mm)</th>
<th>Length (mm)</th>
<th>Height (mm)</th>
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</thead>
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<tbody>
<tr>
<td>1.43</td>
<td>2.46</td>
<td>2.26</td>
</tr>
</tbody>
</table>

Customized Machining Available  
Customized Printing Available

**Ordering:**  
CH (followed by color)

example:  
CH red  
CH blue  
CH clear  
CH green  
CH yellow  
CH orange  
CH beige  
CH black  
CH white  
(custom colors available)
Our JP Line of header assemblies include:

Housing Material: Lexan 141R polycarbonate (PC) (see page 22)

Header Material: Phenolic (PF), (see page 23)

Header Material is:
Extremely Hard
Good Thermal Stability
Chemical Imperviousness

11 PIN Bases
"Octal style" headers
In-Line style headers

Double thru pin connectors
Machining and printing available

Ordering:
JP- 90
JP- 11
JP- 11DTL
JP-11DTS

www.modorplastics.com 1-931-796-0039
Our JR Line of header assemblies include:
JR-105PCC, JR-11, JR-11DTL, JR-11DTS

Housing Material: Lexan 141R polycarbonate (PC)  
(see page 22)

Header Material: Phenolic (PF),  
(see page 23)

Header Material is:
Extremely Hard
Good Thermal Stability
Chemical Imperviousness

11 Bases

"Octal style" headers
In-Line style headers

Double thru pin connectors
Metal flanged headers also available
Machining and printing available

Ordering:
JR-105PCC
JR-11
JR-11DTL
JR-11DTS
JRMF

JR-11

JR (PC board Size)

JR-105PCC Housing

JR-11
Our Potting Shell Line of enclosures include: 22750-0, 22750-1A, 22750-5, 22750-10, 22526, 22536
22526 and 22536 made with Lexan 141R polycarbonate (PC) (see page 22)

All others Material: Phenolic (PF), (see page 23)

Extremely Hard
Good Thermal Stability
Chemical Imperviousness

Customized Machining Available
Customized Printing Available

Ordering:
Case: part number (followed by color)
Lid: (use part number)
Our Potting Shell Line of lids include:
22537, 22538, 22509, 22600, 22601, 22602, 22603, 22604, 22605, RSOB-Holes, RSOB-Posts

Extremely durable.
Very high impact resistance.

Housing Material: Lexan 141R polycarbonate (PC) (see page 22)

Flammability: V0-V2
Melting temperature (Tm) 267 °C
Surface resistivity: $10^{15}$ Ω/sq
Volume resistivity ($\rho$): $10^{12}-10^{14}$ Ω·m

Customized Machining Available
Customized Printing Available

Ordering:
Case: 22750 (followed by color)
Lid: (use part number)

(custom colors available)
Many More Headers Available that are not listed...Call US

1-931-796-0039

RMF-8P

11281-11P

ATC-422-8

AGA-11

R60

CC Flange (no hole)

ATC-8

ATC-11

www.modorplastics.com 1-931-796-0039
In House CNC Drilling/Milling and Perforation Department will custom drill any type of perforation needed for your final assembly.

Extremely Accurate repeatability.

Let us earn your business, one piece at a time.

We take pride in “Made in the USA”
In House Pad Printing and Silk Screening Department for all you industrial needs.

Small font and point sizes available.

100% Made in the USA.
LEXAN 141R is a medium viscosity multi purpose grade and contains a release agent to ensure easy processing. LEXAN 141R is available in transparent, translucent and opaque colours.

### 1. Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density</td>
<td>ISO 1183</td>
<td>g/cm³</td>
<td>1.20</td>
</tr>
<tr>
<td>Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)</td>
<td>ISO 1133</td>
<td>cm³/10 min</td>
<td>12.0</td>
</tr>
<tr>
<td>Water Absorption 23°C/50RH</td>
<td>ISO 62</td>
<td>%</td>
<td>0.15</td>
</tr>
<tr>
<td>Water Absorption Sat/23C</td>
<td>ISO 62</td>
<td>%</td>
<td>0.35</td>
</tr>
</tbody>
</table>

### 2. Mechanical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Modulus (1mm/min)</td>
<td>ISO 527-1-2</td>
<td>MPa</td>
<td>2300</td>
</tr>
<tr>
<td>Tensile Stress at Yield (50mm/min)</td>
<td>ISO 527-1-2</td>
<td>MPa</td>
<td>63</td>
</tr>
<tr>
<td>Tensile Stress at Break (50mm/min)</td>
<td>ISO 527-1-2</td>
<td>MPa</td>
<td>70</td>
</tr>
<tr>
<td>Tensile Strain at Yield (50mm/min)</td>
<td>ISO 527-1-2</td>
<td>%</td>
<td>0.0</td>
</tr>
<tr>
<td>Tensile Strain at Break (50mm/min)</td>
<td>ISO 527-1-2</td>
<td>%</td>
<td>110</td>
</tr>
<tr>
<td>Flexural Modulus (2mm/min)</td>
<td>ISO 179</td>
<td>MPa</td>
<td>2300</td>
</tr>
<tr>
<td>Charpy Unnotched Impact Strength (23°C edgewise)</td>
<td>ISO 179</td>
<td>kJ/m²</td>
<td>No Break</td>
</tr>
<tr>
<td>Charpy Unnotched Impact Strength (30°C edgewise)</td>
<td>ISO 179</td>
<td>kJ/m²</td>
<td>No Break</td>
</tr>
<tr>
<td>Charpy Notched Impact Strength (23°C, Type 2, Notch G)</td>
<td>ISO 179</td>
<td>kJ/m²</td>
<td>35</td>
</tr>
<tr>
<td>Unnotched Izod Impact Strength (23°C, Type 1)</td>
<td>ISO 180</td>
<td>kJ/m²</td>
<td>No Break</td>
</tr>
<tr>
<td>Unnotched Izod Impact Strength (30°C, Type 1)</td>
<td>ISO 180</td>
<td>kJ/m²</td>
<td>No Break</td>
</tr>
<tr>
<td>Notched Izod Impact Strength (23°C, Type 1, Notch A)</td>
<td>ISO 180</td>
<td>kJ/m²</td>
<td>12</td>
</tr>
<tr>
<td>Notched Izod Impact Strength (30°C, Type 1, Notch A)</td>
<td>ISO 180</td>
<td>kJ/m²</td>
<td>10</td>
</tr>
<tr>
<td>Ball Indentation Hardness (H 0.50/20)</td>
<td>ISO 2039-1</td>
<td>MPa</td>
<td>90</td>
</tr>
</tbody>
</table>

### 3. Thermal Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coefficient of Linear Thermal Expansion, Flow (23 to 80°C)</td>
<td>ISO 11369-1-2</td>
<td>cm/cm/°C</td>
<td>7.0E-006</td>
</tr>
<tr>
<td>HDT B (0.45 MPa) Unannealed</td>
<td>ISO 75B-1-2</td>
<td>°C</td>
<td>138</td>
</tr>
<tr>
<td>HDT A (1.80 MPa) Unannealed</td>
<td>ISO 75A-1-2</td>
<td>°C</td>
<td>135</td>
</tr>
<tr>
<td>Vicat Softening Temperature A50 (50°C/10N)</td>
<td>ISO 306</td>
<td>°C</td>
<td>153</td>
</tr>
<tr>
<td>Vicat Softening Temperature B50 (50°C/2.5N)</td>
<td>ISO 306</td>
<td>°C</td>
<td>141</td>
</tr>
<tr>
<td>Vicat Softening Temperature B120 (120°C/2N)</td>
<td>ISO 306</td>
<td>°C</td>
<td>142</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
<td>ISO 8302</td>
<td>W/m/K</td>
<td>0.20</td>
</tr>
</tbody>
</table>

### 4. Electrical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Permittivity (60 Hz)</td>
<td>IEC 60220</td>
<td>2.7</td>
</tr>
<tr>
<td>Relative Permittivity (50 Hz)</td>
<td>IEC 60220</td>
<td>2.7</td>
</tr>
<tr>
<td>Relative Permittivity (1 MHz)</td>
<td>IEC 60220</td>
<td>2.7</td>
</tr>
<tr>
<td>Dissipation Factor (60 Hz)</td>
<td>IEC 60250</td>
<td>0.001</td>
</tr>
<tr>
<td>Dissipation Factor (50 Hz)</td>
<td>IEC 60250</td>
<td>0.001</td>
</tr>
<tr>
<td>Dissipation Factor (1 MHz)</td>
<td>IEC 60250</td>
<td>0.01</td>
</tr>
<tr>
<td>Volume Resistivity</td>
<td>IEC 60090</td>
<td>1E+15</td>
</tr>
<tr>
<td>Surface Resistivity</td>
<td>IEC 60090</td>
<td>1E+15</td>
</tr>
<tr>
<td>Electric Strength (1 mm thickness)</td>
<td>IEC 60243-1</td>
<td>15</td>
</tr>
<tr>
<td>Electric Strength (in Ohm, 1.60mm)</td>
<td>IEC 60243-1</td>
<td>27</td>
</tr>
<tr>
<td>Electric Strength (in Ohm, 3.20mm)</td>
<td>IEC 60243-1</td>
<td>17</td>
</tr>
<tr>
<td>Comb Test Index</td>
<td>IEC 60112</td>
<td>250</td>
</tr>
</tbody>
</table>

### 5. Flame Characteristics

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flame Rating – UL (0.7mm) (E121560)</td>
<td>UL 94</td>
<td>HB</td>
</tr>
<tr>
<td>Flame Rating – UL (3.0mm) (E121560)</td>
<td>UL 94</td>
<td>HB</td>
</tr>
<tr>
<td>Limiting Oxygen Index (LOI)</td>
<td>ISO 4589-1-2</td>
<td>25</td>
</tr>
<tr>
<td>Ret. Temp. Index Mech. w/10min</td>
<td>UL 740</td>
<td>°C</td>
</tr>
<tr>
<td>Ret. Temp. Index Mech. w/10min</td>
<td>UL 740</td>
<td>°C</td>
</tr>
<tr>
<td>Ret. Temp. Index Elec.</td>
<td>UL 740</td>
<td>°C</td>
</tr>
</tbody>
</table>

### 6. Additional Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Standard</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball Pressure Test (125°C ± 2°C)</td>
<td>IEC 8033-1</td>
<td>PASSES</td>
</tr>
<tr>
<td>GlowWire Flammability Index (650°C)</td>
<td>IEC 90696-5-12</td>
<td>PASSES</td>
</tr>
</tbody>
</table>
Phenolic Specifications

Products listed in this catalog that refer to material type “Phenolic” are made from “Durez 152.” This is a high quality phenolic material. The specifications for this material are below:

<table>
<thead>
<tr>
<th>Color</th>
<th>Min Thk (mm)</th>
<th>Flame Class</th>
<th>Flame HWI</th>
<th>Flame HAI</th>
<th>RTI Elec</th>
<th>RTI Imp</th>
<th>RTI Str</th>
</tr>
</thead>
<tbody>
<tr>
<td>BK, BN</td>
<td>1.5</td>
<td>V-1</td>
<td>1</td>
<td>1</td>
<td>150</td>
<td>150</td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>3.0</td>
<td>V-0</td>
<td>0</td>
<td>1</td>
<td>160</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>6.0</td>
<td>V-0</td>
<td>0</td>
<td>2</td>
<td>160</td>
<td>160</td>
<td>160</td>
</tr>
<tr>
<td></td>
<td>12.7</td>
<td>V-0</td>
<td>0</td>
<td>2</td>
<td>160</td>
<td>160</td>
<td>160</td>
</tr>
</tbody>
</table>

Comparative Tracking Index (CTI): 3  
High-Voltage Arc Tracking Rate (HVTR): 0  
Dielectric Strength (kV/mm): 20  
Dimensional Stability (%): 0.02  
High Volt, Low Current Arc Resis (D495): 5  
Volume Resistivity (10^6 ohm·cm): 10

<table>
<thead>
<tr>
<th>Typical Properties</th>
<th>Compression</th>
<th>Injection Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>International Units</td>
<td>English Units</td>
</tr>
<tr>
<td>Specific Gravity (D792)</td>
<td>1.50 g/cc</td>
<td>1.50 g/cc</td>
</tr>
<tr>
<td>Apparent Density (D1895)</td>
<td>0.68 g/cc</td>
<td>0.68 g/cc</td>
</tr>
<tr>
<td>Molding Shrinkage* (D6289)</td>
<td>0.006 in/in</td>
<td>0.006 in/in</td>
</tr>
<tr>
<td>Water Absorption (D570)</td>
<td>0.30 %</td>
<td>0.30 %</td>
</tr>
<tr>
<td>Tensile Strength (D638)</td>
<td>48 Mpa</td>
<td>7,000 psi</td>
</tr>
<tr>
<td>Flexural Strength (D790)</td>
<td>76 Mpa</td>
<td>11,000 psi</td>
</tr>
<tr>
<td>Compressive Strength (D695)</td>
<td>207 Mpa</td>
<td>30,000 psi</td>
</tr>
<tr>
<td>Tensile Modulus (D638)</td>
<td>9.6 Gpa</td>
<td>140 x10^6 psi</td>
</tr>
<tr>
<td>Izod Impact (D256)</td>
<td>16.0 ft/lb/in</td>
<td>0.30 ft/lb/in</td>
</tr>
<tr>
<td>Deflection Temperature (D648)</td>
<td>191 °C</td>
<td>375 °F</td>
</tr>
<tr>
<td>UL Flammability (UL-94) @</td>
<td>1.5 mm</td>
<td>V - 1</td>
</tr>
<tr>
<td>UL Temperature Index (Elect.) @</td>
<td>3.0 mm</td>
<td>V - 0</td>
</tr>
<tr>
<td>Dielectric Strength (D149)</td>
<td>1.0 x10^7 V/m</td>
<td>1.0 x10^7 cm</td>
</tr>
</tbody>
</table>

Properties determined with test specimens molded at 340-350°F *Typical transfer-molded shrinkage is 0.008 in/in or m/m

Other Properties

IEC Tracking index (CTI): 190 V.  
Durez 152 is Fungus resistant per Mil-I-631D and Mil-E-5272C.
Custom Plastic Injection Molding For all Industries

At Modor Technical Products, we will create that piece you just cannot find anywhere else; with some of the most competitive rates in the industry, and as always

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